

THE MEDICAL EXAMINER.

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NOTICE TO CORRESPONDENTS.

Communications and Books for notice should be addressed to the Editors, care of Messrs. Lindsay & Blakiston.

Letters, &c., connected with the *business affairs* of the Journal should be addressed to the Publishers.

Papers for publication must be received *before* the 16th of the month, or they cannot appear in the forthcoming number.

The following Journals have been received in exchange:

Philadelphia Medical News, March.
New York Journal of Medicine, ditto.
New York Medical Times, ditto.
New York Medical Gazette, ditto.
Boston Medical and Surgical Journal, (weekly.)
Buffalo Medical Journal, March.
Virginia Stethoscope, ditto.
Virginia Medical and Surgical Journal, ditto.
New Hampshire Journal of Medicine, ditto.
Montreal Medical Journal, ditto.
Upper Canada Journal, ditto.
Charleston Medical Journal, ditto.
Nashville Journal of Medicine and Surgery, ditto.
Southern Medical and Surgical Journal, ditto.
New Orleans Medical and Surgical Journal, ditto.
New Orleans Medical News and Hospital Gazette, ditto.
Western Journal of Medicine and Surgery, February.
North-Western Medical and Surgical Journal, ditto.
Peninsular Journal, February and March.
Ohio Medical and Surgical Journal, March.
Iowa Medical Journal, February and March.
Western Lancet, March.
Southern Journal of Medical and Physical Sciences, ditto.
Kentucky Recorder, February.
British and Foreign Medico-Chirurgical Review.
London Lancet.
London Medical Times and Gazette.
Edinburgh Medical and Surgical Journal, January.
Dublin Medical Press.
Glasgow Medical Journal, January.
Revue Medico-Chirurgicale, December and January.
Gazette Medicale de Paris, to February 4.
El Porvenir Medico.

Several of our exchanges are in arrears.

BOOKS AND PAMPHLETS RECEIVED.

Anatomy of the Vertebrata. By Siebold. Translated and Edited by W. J. Burnett, M. D.

Transactions of the American Medical Association.

Fuller on Rheumatism.

Annual Report of the Indiana Hospital for the Insane.

Report on the Health and Mortality of the City of Memphis.

Eleventh Annual Report of the New York State Lunatic Asylum.

The foreign correspondents of the Examiner will please direct their Exchanges, Books for review, and other communications, to the care of Trubner & Co., No. 12 Paternoster Row, London, or Mr. H. Bosange, 21 Bis, Quai Voltaire, Paris.

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THE
MEDICAL EXAMINER.

NEW SERIES.—NO. CXII.—APRIL, 1854.

ORIGINAL COMMUNICATIONS.

Homologous Tubera of the Liver. By CHRISTOPHER JOHNSTON, M. D., Lecturer in the Maryland Medical Institute, Baltimore.

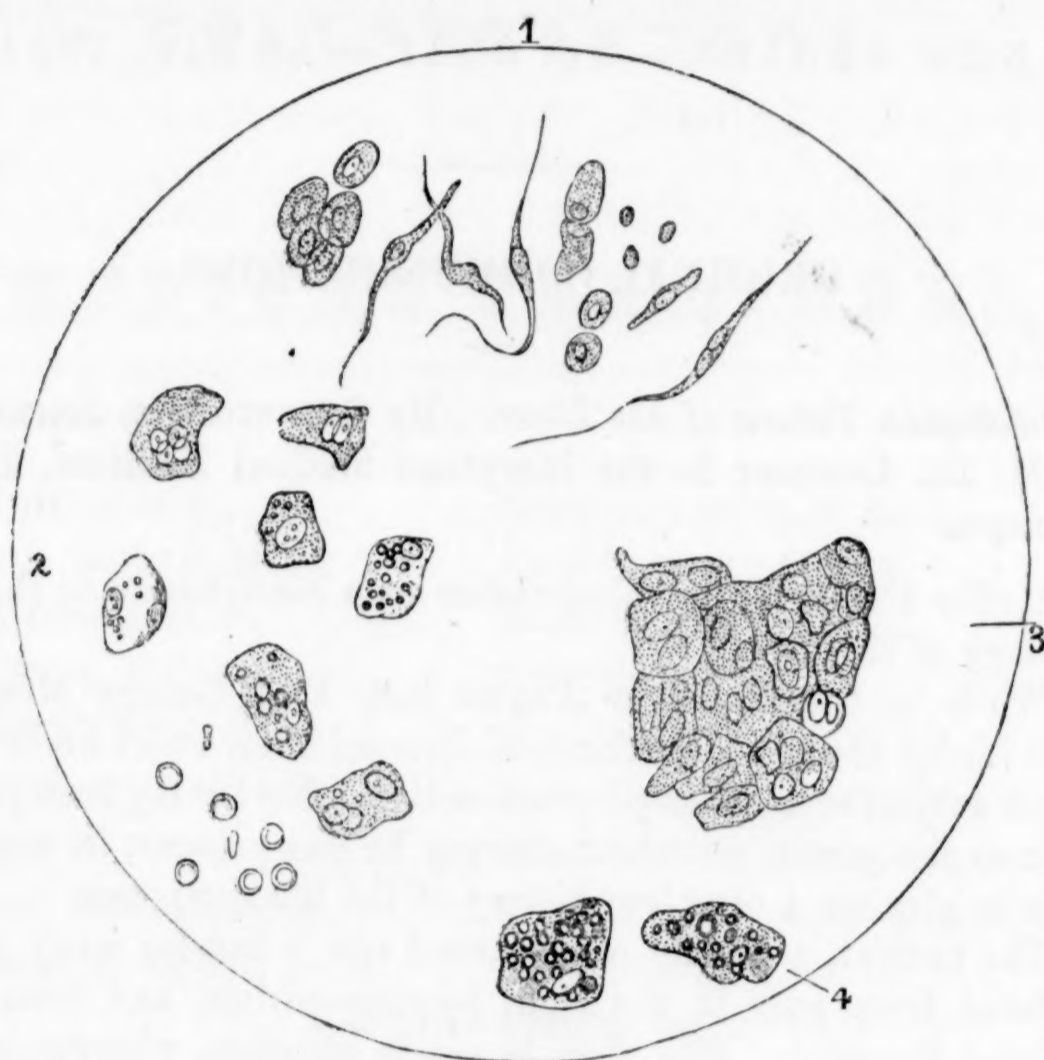
I offer the following observation as a contribution to the pathology of the liver.

While in Cincinnati, in August last, Prof. George Mendenhall kindly sent me a specimen of diseased liver, which he desired me to subject to microscopic examination. Not having been physician to the person at whose autopsy he was present, he was unable to give me a complete history of the life symptoms.

The patient, a female of advanced age, "had for many years suffered from pain in the right hypochondrium and from disordered digestion. She then began to emaciate, whereupon enlargement of the liver was ascertained to exist, and there speedily followed a dropsy, of which she died. The opening of the cadaver revealed accumulation in the peritoneal sac of a large quantity of water, and a liver of much increased dimensions, irregularly bosselated, yellowish upon the projecting points, but fading gradually into the hepatic tissue at the base of the elevation, which measured from a half inch to several inches in diameter. No other lesion could be discovered."

The general appearance of the tumors corresponded very nearly to the description given in Hope's Pathological Anatomy (p. 133) of "Cancerous tubera," but the microscope detected *no heterologous elements*, but homologous ones only, and in a relation not hitherto set forth.

The tumors were of two sorts, the *hard* and the *soft*, the former being composed principally of fibro-plastic matter; the latter consisting of altered *hepatic cells* mingled with the fibro-plastic elements, particularly near the tissue as yet unchanged.



- No. 1. Fibro plastic elements.
- No. 2. Abnormal hepatic cells.
- No. 3. Mass of the same, paler and abounding in nuclei.
- No. 4. Normal hepatic cells.

The change in the hepatic cells occurs in this wise: they first become pale, and lose their fatty globules, while at the same time the nucleus in each increases in size, and undergoes bipartite segmentation. A new brood of cells starts into existence, but in every new generation the capsule presents successively a

smaller diameter, until at length it ceases altogether; but the nucleus multiplies itself indefinitely, so that in the centre of the tumor nothing is to be found save a mass of free nuclei.

A tumor may be compound, that is, may result from the fusion of two or more simple ones.

In proportion as this process advances, the affected part, or the tumor, softens in the middle, (and not on the border where the fibro-plastic element is most abundant,) extravasation of blood takes place, and the coagulum is diffuse.

This diseased condition must react in two ways upon the constitution.

The quantity and quality of *sugar* produced in the liver must be affected in the ratio of the modification taking place in the essential hepatic glandular element; and the bulk of the organ and its weight must make themselves felt as obstacles to the circulation of blood, particularly in the venous system. In other words, the respiratory and assimilative functions suffer first, next the digestion, by reason of the impediment to the circulation in the portal vein, and then dropsy has an easy explanation.

Baltimore, Jan. 19, 1854.

Fungus of the Upper Jaw and its Successful Removal. By JOHN NEILL, M. D., Surgeon to the Pennsylvania Hospital.

From the Notes of Dr. RHODES, House Surgeon.

To those who are familiar with tumors of the mouth and face, the title of this paper will probably convey an erroneous or unsatisfactory impression, and yet we are ignorant of any other term which can be more correctly used.

It would naturally be supposed that this was a case of fungus hæmatodes or medullary fungus, and that we mean to imply that this was a malignant disease usually designated by this generic term. In order to express the sense, however, in which the term is used, and to give a clear account of the affection, it will be necessary to give a history of the case, and then compare it with other affections, so that its true nature may be understood.

“Mary Fitzpatrick, aged 18, was admitted 5th mo. 19, 1853, under care of Dr. Neill.

She is of medium size, has a fine rosy complexion and an appearance of general good health, which she has always enjoyed, with the exception of some imperfection of vision for which she was treated three months since at the Wills' Hospital, and from which she has entirely recovered.

She states that eight weeks since, she first perceived a swelling upon the inner side of the last molar tooth of the upper jaw upon the left side, which she at first supposed to be a gum boil, but as it grew large she consulted a physician, who lanced the swelling. Almost immediately a fungous growth sprouted from the incision, the tooth became loose and was extracted, and the disease extending rapidly, she was induced to apply to the Hospital for relief.

On admission, the left cheek was slightly swollen and tender immediately beneath the malar prominence; and a soft fungus, the size of a hickory nut, was found projecting into the cavity of the mouth from the spot whence the tooth had been extracted.

The surrounding parts were much swollen, the tooth in front of the one which had been lost being almost covered by the spongy gum and also moveable in its socket. The fungus was of a dark reddish hue, except on the under surface, which appeared to be sloughing, and had an ash-grey color.

A probe passed readily between the fungus and the tooth into the antrum. The discharge through this opening, which at one time had been cheesy, was thin, sanious and excessively fetid.

The loosened tooth was directed to be removed, and she was ordered a gargle of diluted chloride of soda with tincture of myrrh; a portion of it to be injected daily through the opening into the antrum.

5th mo. 31.—The fungus has rapidly increased in size, at the same time sloughing upon its surface; the distressing feter makes her an object of disgust even to herself; the voice is altered, from so large a portion of the cavity of the mouth being occupied by the tumor; the cheek is much more swollen; she experiences constant nausea, and rejects food almost as soon as swallowed; her general health has begun visibly to decline, and she eagerly desires any operation which may relieve her distress.

6th mo. 2.—Dr. Neill removed the diseased parts by the following operation. The first bicuspid tooth of the affected side

having been extracted, an incision was carried through the structures of the cheek in a nearly horizontal line from the corner of the mouth beyond the anterior edge of the masseter muscle, and in such a manner as to avoid the duct of Steno.

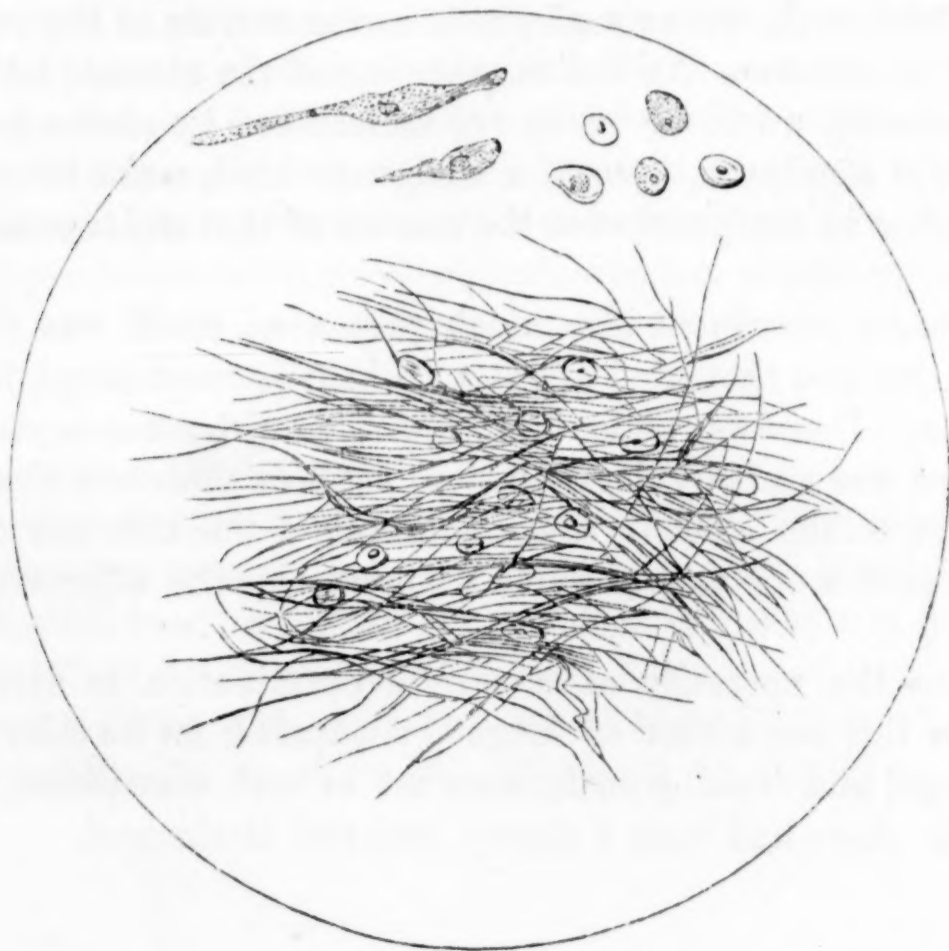
The upper flap being raised, the alveolar process was divided with the bone forceps at the point whence the tooth had been extracted for the purpose.

Then with the curved bone forceps of Liston, the exterior wall of the antrum was divided through its whole extent, and next the palate process of the superior maxillary bone; care being taken to remove as much as possible. The soft parts were now severed by the scissors from the posterior edge of the bony palate, and the mass shaken loose, when the division of a few remaining fleshy attachments completed its separation.

The cavity of the antrum was found filled with the fungus which, however, was attached only to the floor, leaving the lining membrane of the remainder of the antrum healthy.

The hemorrhage was moderate; a few arteries required ligatures, and the parts having been well freed from coagula, the cut edges of the cheek were approximated by the twisted suture, strips and collodion.

The tumor was found to originate from the bone; the tissues



of the two being intimately blended. The central part was of a pale straw color, and jelly-like appearance, but tough. The fungus was friable, and dark red from effused blood. Under the microscope the tissue of the tumor presented fibro-plastic nuclei, fibre cells and fibres.

6th mo. 4.—Some febrile reaction followed the operation, but has now subsided. The pins were removed to-day; the cut surfaces adhere, and are well supported by the strips and collodion.

6th mo. 30.—She was discharged, cured. The wound in the cheek has entirely healed, both within and without, leaving the least possible scar on the latter surface."

Remarks.—When this patient opened her mouth and this rounded tumor was seen projecting from the gum, the idea that it was epulis first suggested itself. Epulis, however, though it may occur in this situation, does not possess similar characters; it is a fibrous structure—a simple growth emanating from the gum or periosteum; it is of a firm consistence, and, when small, is covered by a smooth membrane. It commences by a small, seed-like, warty excrescence, grows very slowly, without pain, and is usually of the color of the gum, or sometimes somewhat lighter.

Moreover, when it is observed that this growth sprouted rapidly from an incision supposed to have been made into a gum-boil, and that the cavity of the antrum was opened by the extraction of the first tooth, we naturally look to the antrum as the original seat of the disease. An ordinary abscess of the antrum, however, when opened, would certainly not be followed by such a growth, nor would a polypus, even of a malignant kind, make its appearance either in the position or the manner of that under consideration.

The most prominent idea which presented itself was that of cancer, but not that kind of cancer which is most usual in this situation. There was no feature in common with osteo-cephaloma, for there was no bony degeneration, nor was there any abnormal nutrition of the osseous tissue; the tumor was soft and fleshy, simply such a one as you would designate by the adjective *fungous*.

Hence the necessity of a careful examination to determine whether this was a case of fungus hæmatodes; for its color, fetid discharge, and rapid growth, soon led to such a suspicion, especially as there had been a cheesy material discharged.

The antrum is frequently the seat of medullary cancer, and it is quite likely to occur in early life. According to Liston, it originates at the root of a tooth, or from the membrane lining the maxillary sinus; it grows rapidly, produces pain, bursts the cavity, discharges a soft, brain-like material, and blood and sanies; the teeth are loosened and a fungus rapidly grows.

With such a view, no time was to be lost; the tumor was growing rapidly, and the only chance of its cure was based upon its thorough removal, and the hope that it might not prove to be what it seemed.

The operation was commenced with the intention of removing the whole of the superior maxillary bone, if it were necessary, but the sides and floor of the antrum, with a portion of the roof of the mouth being removed as a preliminary operation, the interior of the antrum could then be satisfactorily exposed, and the fungus being found not to involve the upper and posterior walls, they were allowed to remain.

The microscopic examination of the mass after the operation, gave satisfactory evidence of the benign character of the affection; and the present sound condition of the patient corroborates this opinion and justifies the course pursued; and we, therefore, are disposed to consider this case as a similar one to that which Mr. Liston describes when speaking of epulis, "A soft tumor of the gum, rapid in its progress, broken on its surface, and furnishing fetid and bloody discharge, is said to be sometimes met with; there is no danger of mistaking the one for the other, the remediable for the malignant, and fortunately the latter is rare;" and also to agree with Jourdain and others that there is a fungus of the upper jaw involving the antrum, which is not malignant.

Case of Placenta Prævia. By J. K. MASON, M. D.

In reading the different works on midwifery, it will, I think, occur somewhat painfully to the mind of every young practitioner, that the treatment of that most formidable of all the accidents to which child-bearing women are exposed, viz: placenta prævia, is far less clearly defined than might be wished; nor can it ever be otherwise, for it is the inherent consequence of the very nature of the difficulty, in which the danger is so imminent, and the

tendency to death so strong and rapid, as in some instances almost to preclude the possibility of any treatment whatever.

As in all critically dangerous cases, different modes of treatment have been advocated and adopted, and each has had its successes to record and its followers to panegyryze.

Some authors tell us that our reliance must be on the use of the tampon until the os uteri be sufficiently dilated or dilatable to permit the operation of turning, without lacerating the womb by forcing an entrance and thereby destroying the woman; but this direction is too vague to be of much practical use; nor could any man with a heart in his body submit to obey it with a fellow creature bleeding to death before him. No, he must act to accomplish a great good; he must nerve himself to incur some risk. He may, it is true, be a little too soon, but he is between Scylla and Charybdis. It were worse to be too late.

On the other hand, some distinguished authorities object to the use of the tampon, considering it insufficient and even dangerous. An eminent European professor has recently advocated the practice of separating the whole of the placenta and removing it as soon as the os uteri is sufficiently dilated or dilatable. But with deference I must confess I am not convinced that we have gained much by the suggestion, for the poor sufferer might still bleed to death long before the aforesaid requisite degree of dilatation or dilatability had taken place.

These gentlemen bring forward cases, each to prove the superior efficacy of his own mode of practice, and there can be no doubt but that each mode has occasionally succeeded, for such accidents left entirely to nature have sometimes by her unaided efforts alone, been brought to a happy termination.

My own conviction is, that in the practice of medicine, midwifery or surgery, all exclusive modes of treatment are unphilosophical and absurd; that in unavoidable hæmorrhage especially, the treatment which in one case would enable the unfortunate woman to overcome the frightful danger which threatens her, might in another be utterly useless, or even hurry on the dreaded catastrophe.

In relation to the treatment of placenta prævia I do not presume to offer any theory or even a single practical novelty, convinced as I am, that all the hobby horses will occasionally share

the same fate and be found terribly lame at the bed side ; but having recently treated such a case successfully, for the sufferer, though bloodless, blanched and nervous to an extreme degree, is slowly recovering, being now in her 21st day, I will relate the circumstances as they occurred ; state how, when and why I acted, and leave my readers to judge the practice by the best test we have, the result :

Feb. 12th, 1854. Was called to Mrs. H——, then carrying her thirteenth child. I found her in bed, very much alarmed by some sudden gushes of blood attended with pain, though not of a severe nature. This condition of things, I was informed, had continued for nearly two hours. When I reached her the bleeding had entirely ceased. On making some enquiry I found that Mrs. H. considered her pregnancy advanced to about the end of the eighth month, and on making an examination per vaginam I was satisfied by the condition of the neck of the womb that her calculation was a correct one. At this time she complained a little of pain, that her head felt dull and loaded, with a sense of aching and stiffness, as she described it, in the eyelids ; the pulse was rapid and full, and there was a feeling of heaviness and oppression in the chest ; there was also considerable epigastric uneasiness.

These symptoms made me fearful of an attack of puerperal convulsions, and I immediately took some sixteen ounces of blood from her arm, with the effect of giving great relief, and after prescribing an anodyne, left her.

On my visit the next morning found her very much improved, pulse good, respiration free, head lighter and unoppressed, countenance natural and mind free from anxiety ; but at midnight she had another sudden attack of hæmorrhage unaccompanied by pain or uneasiness. It stopped, however, as suddenly as it came on, and she remained tranquil and comfortable.

Three nights after, on the 19th, she had another attack of the same nature—the loss of blood greater than before—without the slightest pain or disposition on the part of the uterus to take on expulsive action.

I now felt convinced that I had to contend with a case of presenting placenta, but to what extent, whether partial or complete, it was impossible to form an estimate. On this occasion, as formerly, the flooding after a few gushes suddenly ceased, and I

left her with direction to keep perfectly quiet, and send for me on the slightest renewal of the cause of alarm.

I heard no more of her until the 23d. About one o'clock, A. M., I was roused from my bed to visit her, hurried to the house, and on entering her room found her looking tolerably well though much alarmed. She informed me that she had had a tremendous gush of blood. I immediately examined the bed, and was much relieved by finding that she had not lost a drop, but that the membranes had given away and that it was the discharge of the liquor amnii which had caused the fright. Still not the slightest pain or contraction of the uterus.

Made an examination per vaginam and found the cord presenting. This circumstance satisfied me that if the placenta presented it could be but partial, and I hoped that regular contraction would shortly ensue and terminate this hitherto discouraging case, without further difficulty. There was not the slightest tinge of blood in the amniotic discharge, and the cord pulsated strongly, but the os uteri was so slightly dilated and the probability of a natural delivery so good that the attempt to turn would have been perfectly unjustifiable.

After waiting an hour without perceiving the slightest manifestation of change, I returned to my house, which was in the immediate neighborhood, desiring them to send for me on the slightest appearance of uterine action. In a very short time I was hastily summoned, and on reaching my patient found that she had been seized with a sudden and tremendous flooding. She was pale, gasping, almost pulseless, and partially convulsed. Brandy was freely administered; and now satisfied that another such hæmorrhage would be fatal, I applied the tampon and sent for my friend Dr. Hollingsworth, resolved, should he approve, to turn and deliver by the feet as soon as the poor woman's strength should be sufficiently rallied to justify the operation.

The Doctor was with me in a very short time, and, on seeing the state of the case, agreed with me, that the child must be turned, and the uterus emptied at all hazards, as soon as some degree of reaction would warrant the attempt. We gave her brandy in repeated doses, and resolved to wait and watch for the favorable time. After the lapse of two hours, finding that there were no pains, that the pulse did not improve in force, and that

there was some slight loss of blood through the tampon, and fearing internal hæmorrhage, we determined to act without further delay; accordingly forty grains of an infusion of ergot were administered, after which I removed the plug, and passing my hand cautiously into the vagina, I found the os tinæ open to about the size of a dollar, but lax; the uterus being perfectly passive, caused, I presume, by the great loss of blood. My hand, therefore, passed, without much resistance, into the organ; the child lay to the left side, nearly in the first position of Baudouque, and the placenta could be distinctly felt on the right side, extending from the os, covering about a third of its disc, and stretching up towards the fundus.

The left foot of the child was first brought into the vagina; this Dr. H. secured with a fillet, and I proceeded in search of the right. The ergot, or the hand, or perhaps both—I have considerable faith in the manual-stimulation—had now produced some uterine action, which rapidly increased, so much so, indeed, that the introduction of the hand was much more difficult; having, however, secured the right foot, it was brought into the vagina, and a dead child brought away without much further difficulty—Dr. H. supplying the patient freely with stimuli, and keeping up a steady pressure on the womb, so as to cause it, by its tonic contraction, as it were, to follow up the exit of its contents.

There was no hæmorrhage from the time that I first introduced my hand. The placenta was easily removed, and, a most gratifying circumstance, the patient's strength seemed to be rather improved than exhausted by the operation.

The treatment of this case since delivery it would be useless and tiresome to repeat. Suffice it to say that it has been chiefly addressed to the end of calming nervous irritation, which has been very considerable.

The recovery has especially been retarded by great irritability of stomach, which, as it for some days precluded the possibility of throwing much nourishment into the system, has necessarily kept her weak and depressed.

She has neither tympanitis nor pain, nor tenderness in the region of the abdomen or pelvis, but is occasionally harassed by a succession of tremors, unaccompanied by any sensation of

cold—an irregular, nervous action, I imagine produced by the great deficiency of the stimulating portion of the blood, viz., the red globules.

She is now taking quinine and iron, with milk punch, beef tea, &c., for diet; and occasionally an enema containing opium.

M. A. Lereboullet upon the Intimate Structure of the Liver and the Nature of the Alteration known under the name of Fatty Liver. Portal Prize Essay.

(Translated for the Medical Examiner by JAS. E. RHOADS, M. D., Resident Physician at the Pennsylvania Hospital.)

M. Lereboullet, in a monograph upon the above subjects, after an extended and very lucid explanation of his views of the structure of the liver, as derived from its examination in man, and the different orders of animals, both in the adult and foetal condition, and from micrometric measurements of the constituents of the lobules in injected preparations from the human subject, sums up the results of his investigations in the following general conclusions.

The organs which prepare the biliary fluid in all animals are cells; that is, hollow organic elements analogous to the utricles of vegetables.

The liver of the molluscs and of the crustaceæ, as the crawfish, contain two kinds of cells, biliary and fatty.

These two kinds of cells multiply by endogenous generation. The fatty cells appear to be only transitory, and are transformed into biliary cells by the deposition of biliary granules within them, and the disappearance of the oily particles which they contained.

The liver of the vertebrate animals is composed of lobules, that is, of small aggregations of the secretory elements, which are so grouped as to form masses of variable dimensions, seldom exceeding two millimetres, or rather less than a line in diameter. These lobules are frequently more or less blended with each other. They are most readily distinguished in the liver of the hog, in which they are surrounded by a special capsule, in direct continuation with the capsule of Glisson. In the human liver the lobules are always more or less confounded with each other.

The two colors of the liver, which render visible its division

into lobules, are not due to the existence of two distinct substances, nor to the greater or less accumulation of bile in the ducts, but depend solely upon the relative degree of repletion of the perilobular portal vessels, and of the hepatic veins which occupy the centre of the lobules.

When the stasis of the blood occurs in the portal veins, the periphery of the lobule is darker than the centre; the contrary state obtains when the portal veins are empty, while the central ones are filled with blood, as is seen in many pathological states, particularly in the fatty liver.

In the liver of the hog there exists, around each lobule, a true cellular envelope, which is easily demonstrated, and which separates the lobules perfectly from one another. The fibrous elements of this envelope are continuous with the cellular tissue surrounding the vessels, (capsule of Glisson). In man no trace of this lobular envelope can be demonstrated.

The hepatic lobule is, in itself, a small liver, composed of secretory cells, a capillary rete of afferent and another of efferent blood vessels.

The secretory or biliary cells of the vertebrate animals are, like those of the invertebrata, true utricles.

The opposite walls of these closed sacs are more or less pressed together, but may be distended and rendered ovoid by treating them with chloroform. The examination of fatty cells also shows that the oil is developed in their interior and distends their walls.

These cells habitually contain, 1st. A spherical nucleus, with a variable number of transparent, punctiform nucleoli. 2d. Grey or fawn colored granules, dispersed through the cell or accumulated in minute masses (biliary granules). 3d. Very small oil globules, scattered among the preceding.

The existence of these several elements in the interior of the cells is not constant. The nucleus is occasionally wanting, the biliary granules are not always aggregated, and the fatty vesicles are not always distinct.

The dimensions of the nucleus are nearly constant, yet I have frequently found nuclei much larger than ordinary, and which may be regarded as included cells.

Cells containing two nuclei of equal size are sometimes met

with ; this circumstance, rare in healthy livers, appears more commonly in certain cases of disease of this viscus.

Although I have observed some endogenous cells in the human liver, I cannot affirm that this sort of cells exists in the normal state. They are, at least, always very rare in man and the mammalia as well as in birds.

Endogenous cells exist positively in reptiles (frogs and salamanders), and in fish. In the liver of fish only, have I found fatty cells distinct from the biliary cells ; yet the oil globules contained in these cells were small and few in number.

In the liver of the foetus of mammals there exist two kinds of cells ; fatty cells in great numbers, and endogenous biliary cells, always much smaller than the preceding.

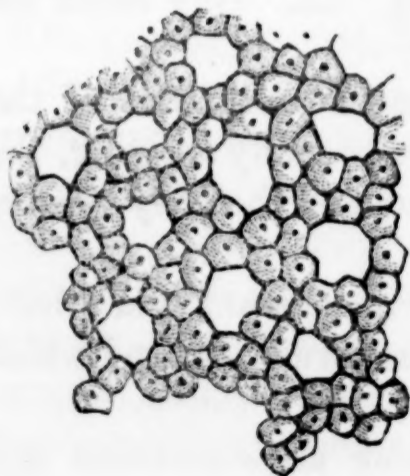
The fatty cells which composed almost the entire liver of the foetus of a rabbit of fifteen days, were filled with oil globules of uniform size. In a human foetus at term, I could no longer find special fatty cells, but found some endogenous biliary cells yet existing.

The predominance of fatty cells in the liver of the foetus before term, and their existence in the livers of fish and in those of the invertebrata, confirm me in the opinion announced above, that the fatty cells are the first state of the biliary cells.

The great number of endogenous cells, whether fatty or biliary, in the inferior animals and in the foetus, and the rarity of these cells in the superior vertebrata, authorise us to regard the biliary cells of these latter as having attained the full extent of their development.

The biliary cells are joined by their ends so as to form longi-

Fig. 1.



tudinal series which converge towards the centre of the lobule. (See figure 1.) These longitudinal series are united by shorter transverse ones, so as to represent a network with meshes, polygonal or rounded at the periphery of the lobule, and elongated towards its central part.

Each thread of this network is double, that is, formed by two ranges of cells, which touch at their sides and leave only a linear interval between them.

But these two ranges of cells are only in juxtaposition, separating easily by the slightest traction.

The cells which constitute the series are, on the contrary, adherent to each other; hence we frequently see simple series of cells yet adherent, after tearing a minute piece of the substance of the liver.

These series or chains of cells do not form tubes, as was supposed by E. H. Weber; the cells which compose them do not open into each other, but are, on the contrary, perfectly distinct and independent.

The network formed by the double ranges of cells pervades the whole thickness of the lobule, from the perilobular vessels to the central one. Hence it is inaccurate to speak of the secretion as taking place exclusively at the periphery of the lobule. The meshes of the network of cells are filled by the blood vessels of the lobule.

The double threads of the biliary network are probably surrounded by a proper membrane, which would constitute the basement membrane of these secretory tubes, but this is so adherent to the walls of the blood vessels, as to render it impossible to prepare and demonstrate it, in such a manner as to show that the included biliary cells are only epithelial. Therefore in the natural state these secretory tubes within the lobules would be full, that is entirely occupied by the secretory cells, and hence their cavity is simply linear.

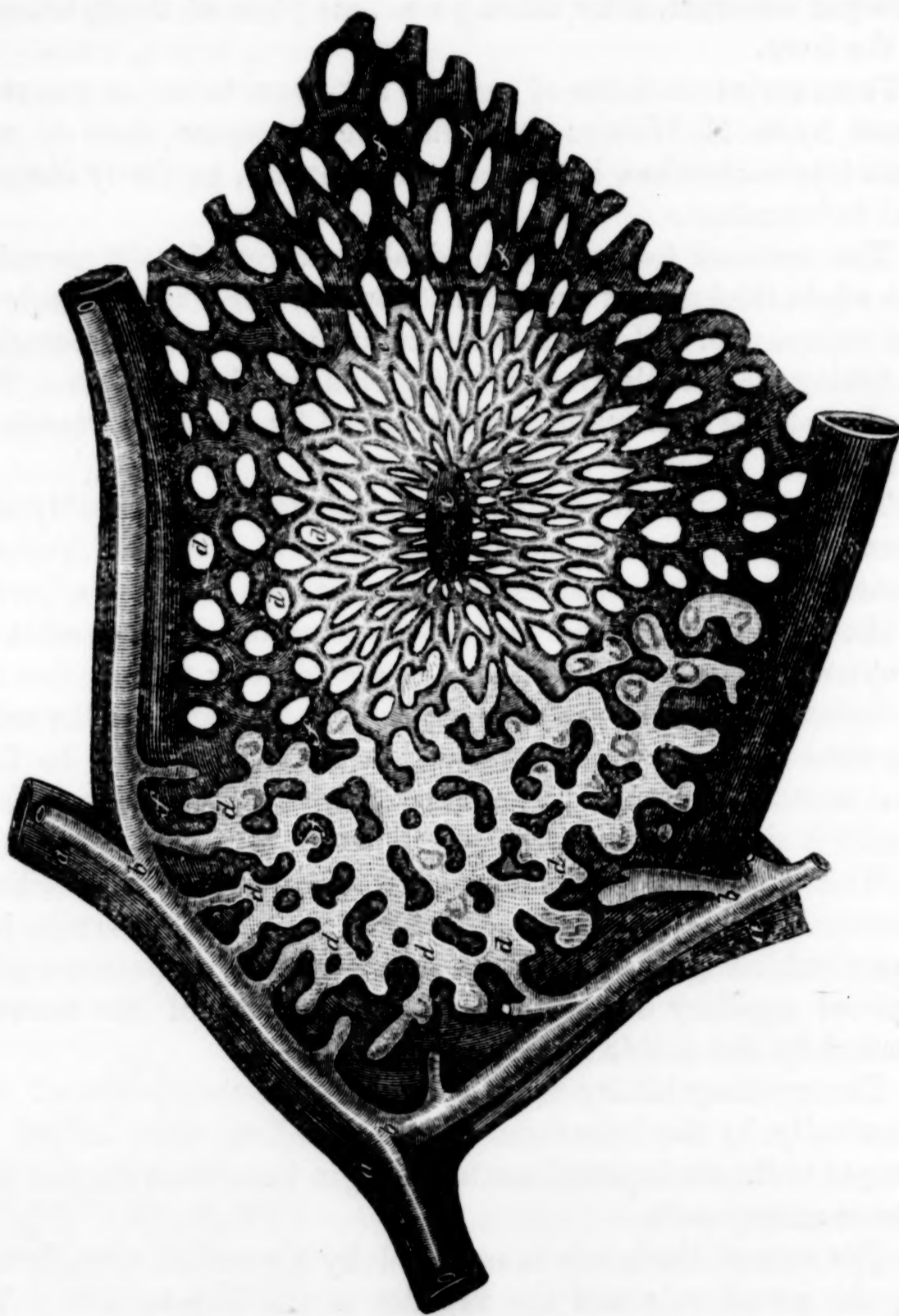
When we succeed in throwing an injection into these biliary passages, the injected matter distends the linear intervals just described, compresses the cells, and gives the appearance of a rete of capillary ducts which takes the place of the network formed by the double ranges of cells.

The capillary biliary ducts of authors are then produced mechanically by the injection. These canaliculi have indeed no proper walls, the injected matter being in immediate contact with the secretory cells.

The rest of the lobule is occupied by a vascular rete, formed by the portal vein and the radicles of the hepatic vein. The meshes of this network adapt themselves exactly to the threads of the biliary rete, and vice versa, so that the two are closely

interlaced. (See figure 2.) The mean diameter of the threads forming the meshes, and of the meshes themselves in either network, is .015 of a millimetre.

Fig. 2.



An injected lobule, enlarged about one hundred times, showing the interlacing of the portal and biliary networks.

a—The portal vein. *b*—The hepatic duct. *c*—The hepatic vein. *d*—The biliary plexus. *e*—The plexus of the hepatic vein. *f*—The plexus of the portal vein.

The threads of the blood-vessel network of the lobule are tubes with definite walls and not simply channels. The existence of the walls of these vessels can be demonstrated and their structure studied. The portal network occupies the periphery of the lobule; it is formed by small vessels which are given off, at short intervals, from the perilobular veins, and which immediately become capillaries. The meshes of this network are polygonal.

The network of the hepatic vein fills the central half of the lobule; its meshes are elongated, (see figure 2), and terminate in the central vein, or intralobular vein of Kiernan.

The biliary secretion does not then take place in a circumscribed portion of the lobule, as some authors have stated; at the periphery, according to some, and at the central portion according to others, but in every part of its thickness, since the secretory cells exist in all parts of it and are supplied at every point by blood vessels.

Every lobule has its axis traversed by a vein, the central vein, which either terminates in a cœcal extremity, or divides into several diverging branches. These central veins either unite to form a branch of the hepatic vein, or open directly into one of its branches upon which the lobule is placed.

Upon slitting open an hepatic vein, the orifices of these central veins may be seen, by the naked eye or by the aid of a lens, generally placed at the centre of the lobule, whose outline may be distinguished through the walls of the vessel.

The biliary canals which leave the lobules are always multiple. They arise from all points of the surface of the lobule, and after having united with each other many times, like the roots of a tree, leave the lobule and form one or more ducts, which, with the corresponding trunks of the portal vein and hepatic artery, are surrounded by a fibrous sheath, the capsule of Glisson.

The portal vein, after subdividing in the capsule of Glisson, furnishes ramuscles which encircle the lobules, but never form a perfect and complete vascular sheath around any one lobule, since each lobule receives numerous branches from the neighboring portal veins; and it is from the reunion of all these perilobular branches, that the more or less complete vascular circle is formed around each lobule, and from which the lobular portal rete takes its origin.

The hepatic artery, which everywhere accompanies the portal vein, does not concur in the formation of the lobule. Its ramifications are expended upon the walls of the vessels and in the capsule of Glisson.

They have a particularly abundant capillary distribution in the subperitoneal cellular tissue at the surface of the liver. This network, which the hepatic artery forms at the surface of the liver, does not differ from the rete of the subjacent portal vein. They have the same dimensions, are continuous with each other, and thus really constitute but one.

The blood of the hepatic artery does not appear to concur in the formation of the bile, or, at least, the part which it plays in this secretion is very secondary.

The walls of the hepatic duct, ductus choledochus, cystic duct and gall bladder, are lined by closed ovoid follicles, which form by their union small granular sacs, lying upon the exterior of the ducts, and furnished with an excretory canal which opens into the latter.

The closed follicles in these granular sacs are lined on their interior, by an epithelial formed of small granular spherical cells.

On Some of the Compounds of Urea and a New Method for Determining Common Salt and Urea in Urine.

By J. LIEBIG.

(Translated for the Examiner.)

From the above mentioned essay, we extract only that part which relates to the quantitative determination of chloride of sodium and urea in urine, and the method requisite for accomplishing it. It is almost needless to mention, that the greatest accuracy is necessary in the measurement of the various fluids, by the burette, which here takes the place of the balance; on this account, we give Liebig's statement in his own words.

Quantitative Determination of Chlorides in Urine.—When the chlorine compounds of the alkalies are mixed with the pernitrate

of mercury, these salts are decomposed into bichloride of mercury and into a nitrate of the alkaline base.

The perntrate of mercury immediately produces in a solution of urea, a thick white precipitate, which does not occur with a solution of bichloride of mercury.

Upon these two facts depends the method for the quantitative determination of chlorine in a fluid containing urea and chlorides. If, for instance, we mix a solution of urea and chloride of sodium, and add slowly in small portions, a weak solution of perntrate of mercury, a white cloudiness will be produced, which immediately disappears upon agitation, the liquid remaining as clear and transparent as before; without the chloride of sodium, however, the solution would have remained permanently cloudy. If we possess therefore a solution of perntrate of mercury, graduated and determined by means of chloride of sodium, we can by its assistance attain in a very short time the amount of chlorine contained in urine. This graduation is done in the following manner:

Liebig confirms the fact, that when pure transparent rock salt in large pieces is covered with water and allowed to remain, with frequent agitation, for 24 hours, at a temperature of 12° to 24° C. (53.6° to 75.2° F.) the liquid will have dissolved an invariable amount. By evaporating 10 C.C. of this solution, he obtained (as Fuchs and Fehling did also) 3.184 grm. of chloride of sodium. If we now carefully measure out by means of a pipette 20 C.C. of such a solution, (not adding the drops that may adhere to the point of the pipette,) and mix it with 298.4 C.C. of water, then we have 318.4 C.C. of a diluted solution, containing therein 2×3184 milligrammes of chloride of sodium. In 10 C.C. of this solution are therefore contained 200 milligrammes of chloride of sodium. We then measure by means of a small pipette containing, when filled to a mark on the tube, exactly 10 C.C. of the above mentioned solution, and let it flow into a small beaker glass, then add 3 C.C. of a solution of urea, which in 100 C.C. contains 4 grammes of urea—therefore in 1 C.C. contains 40 milligrammes of urea. The diluted mercurial solution, (the strength of which is to be determined,) is poured into a burette, the height marked at which it stands, and poured drop by drop into the mixed solution of urea and chloride of sodium, which is

kept in a state of rotary agitation ; as soon as a decided permanent precipitate appears, the test is completed.*

If with 10 C.C. of a solution of chloride of sodium, 7.8 C.C. of a solution of mercury is required for the production of a precipitate, the solution is too concentrated to admit of a correct valuation ; it must be diluted with an equal volume of water, and the experiment repeated. If, for instance, 15.5 C.C. of a mercurial solution is required for the production of a cloudiness in 10 C.C. of a solution of urea and chloride of sodium, then to every

155 volumes of this mercurial solution

45 " of water must be added, by which

we attain 200 volumes of mercurial solution, of which each 20 C.C. indicates exactly 200 milligrms., or 1 C.C., 10 milligrms. of chloride of sodium. By means of a check experiment the exactness of this measurement can be proved. In mixing 20 C.C. of the test liquid with 10 C.C. of a solution of urea and chloride of sodium, the degree of cloudiness, which is permanently obtained, must be kept in mind. For in the application of this test fluid to the quantitative determination of chloride of sodium if more or less mercurial solution be added, in excess, whereby the cloudiness becomes stronger or weaker, a source of error arises which can easily be avoided by a little practice.†

* No regard need be paid to a mere opalescence of the fluid, as this depends upon the presence of foreign metals, and can easily be recognized as not belonging to the test, since, by the addition of a few drops more of the mercurial solution, the cloudiness does not increase. If the precipitate arises from the compounds of urea, this is not the case, for one drop more of the solution of mercury produces in this case an increased cloudiness.

† The above-described test fluid is intended for those cases in which no foreign salts and no excess of urea are present in the solution ; but if employed for the determination of chloride of sodium in urine, there arises a slight error, which makes the amount contained in that fluid appear less than it really is. This error arises from the cloudiness appearing rather earlier, when foreign salts and much urea are present, as in such fluids the precipitate is rather more difficult of solution. A deposit of nitrate of mercury and urea is not produced in the fluid until this is saturated with it ; the mercurial solution always contains free nitric acid, which dissolves more of it than water, and this more than a solution of nitrate of urea. Since urine generally contains more urea than was added to the chloride of

To determine now the amount of chlorides in urine, it is necessary, first, to remove the phosphoric acid contained therein. Liebig found that a mixture of one volume of a cold, saturated solution of nitrate of baryta, with two volumes of cold, saturated aqua baryta, was suitable to effect this. We add one or two volumes of this mixture to the urine that is to be examined; the liquid is then filtered from the arising precipitate; it is alkaline from the excess of baryta; this alkaline reaction must be removed by means of nitric acid, though care must be taken to add no more nitric acid than is necessary to restore a slight acid reaction.*

For this experiment then, we must measure in a small pipette, exactly holding the amount, 15 C.C., of this fluid, corresponding to 10 C.C. of urine, pour it into a small beaker glass and mix it, with constant stirring, with the mercurial solution. After the cloudiness appears, the amount of test liquid used can be ascertained from the burette; every C.C. used represents 10 milligrms. of chloride of sodium. Comparative experiment proved that the results obtained in the quantitative determination of chlorine by

sodium, in the graduation of the mercurial solution, this urea enters into combination with a part of the free nitric acid of the mercurial salt, forming nitrate of urea, by which the solvent power of the fluid for the precipitate is lessened, the latter appearing earlier, so that less of the test fluid is necessary to produce the reaction. This error may be entirely prevented, if to the 10 C.C. of solution of chloride of sodium, which has been mixed with 3 C.C. of a solution of urea, is added 5 C.C. of a cold saturated solution of sulphate of soda, and the test fluid then graduated. Pernitrate of mercury gives with a solution of sulphate of soda, a yellow pulverulent precipitate of turpeth mineral. If the sulphate of soda contains chloride of sodium, the addition of the nitrate of mercury does not produce a precipitate of turpeth mineral until the whole of the chloride of sodium is converted into bichloride of mercury; on this account the experiment is only affected by the addition of sulphate of soda so far that the free acid of the mercurial salt combines with the sulphate of soda to form an acid salt, whereby the same object is attained as by an excess of urea.

*It is better to acidify with nitric acid the whole filtrate, and not merely the measured out 15 C.C. which is used as a test; a few drops more would not matter in a 100 or more C.C., but added to the small amount employed for the determination, would injure the accuracy of the experiment.

the above described method, were as exact as those by the use of nitrate of silver.

Quantitative determination of urea in urine.—The method depends upon the precipitation of the urea by perntrate of mercury. The explanation is as follows: If a diluted solution of perntrate of mercury is gradually added to a diluted solution of urea, the free acid of the mixture being neutralized, from time to time, by aqua baryta or a weak solution of the carbonate of soda, a flaky, somewhat spongy, snow-white precipitate, insoluble in water, will be obtained. If the mercurial salt and carbonate of soda are alternately added, as long as a precipitate is formed, the mixture at a certain period will, upon the addition of carbonate of soda, assume a yellowish coloring arising from the basic nitrate of mercury. If the fluid be now filtered it will contain no appreciable amount of urea, for it has all been precipitated. Liebig found that this precipitate always contained one equiv. of urea and four equiv. of oxide of mercury.

If perntrate of mercury is added to a solution of urea, as long as a precipitate is formed, then the mixture, upon the addition of carbonate of soda remains *white*; but if the original mixture be allowed to stand for a few hours, the nature of the precipitate becomes changed, and is then crystalline, and the six sided leaflets of the combination with three atoms of oxide of mercury are easily recognized, and the clear liquid remaining above the crystals—which was previously precipitated white—now, by the addition of alkalies, gives a yellow precipitate. In the acid liquid, the combination with four atoms of oxide of mercury is therefore transformed into a combination containing less oxide; that is to say, a portion of the oxide enters again into solution. In order to ascertain if the requisite amount of mercurial salt has been added, to produce the compound of urea, with four atoms of oxide of mercury, the solution must be neutralized by carbonate of soda. If a drop of this mixture remains white, when mixed upon a watch glass with a drop of the solution of carbonate of soda, then it can be safely asserted that free urea is present; but if a yellowish film appears upon the surface of the liquid, then the limit is reached, or rather overstepped; it is only necessary now to add a very slight excess of mercurial salt—to indicate that a sufficient amount has been

added—for the entire precipitation of the urea. It is evident, that if the amount of mercury in the mercurial solution be known, the amount of urea contained in the liquid can also be known, from the amount of the solution requisite for the precipitation of the urea. Or, if to precipitate a known amount of urea, say 100 milligrms.—we have found it necessary to use a certain volume of mercurial solution—then in a fluid containing an unknown amount of urea, a like volume of the solution, must indicate a corresponding amount of urea. We can calculate the amount of urea from the amount of mercurial solution used; if more or less is requisite—more or less urea is present. After this explanation the method is easily understood. A solution of pernitrate of mercury must be graduated, with which an exact quantitative determination of urea can be made. Liebig, for this purpose, used a solution of which 1 C.C. corresponds precisely to 10 milligrms. of urea. This solution must contain as much oxide of mercury as is necessary to form, with 100 milligrms. of urea, the nitric acid combination with 4 equiv. of oxide of mercury, together with a small excess necessary to indicate the precipitation of the urea, ascertained in the manner above stated. Liebig found that for 100 milligrms. of urea, which, according to the calculation, required 720 milligrms. of oxide of mercury (in the form of the nitrate,) 10 C.C. of the mercurial solution must contain 772 milligrms. of oxide of mercury, in order to produce in diluted fluids a distinct reaction of the mercurial oxide. Each C.C. of mercurial oxide must therefore contain an excess of 5.2 milligrms. of oxide of mercury. The most simple mode of obtaining this fluid is to dissolve pure mercury in pure nitric acid; it must then be warmed and nitric acid added until no more red fumes arise; evaporate it then in the water bath to a syrup consistence, and finally dilute it with so much water, that in 100 C.C. of the diluted solution will be found precisely 7.140 grmms. of mercury. This occurs if we add to 100 grmms. of mercury (changed into nitrate of the oxide) so much water, that the volume of the fluid consists of 1400 C.C. On this account it is therefore desirable not to add the whole calculated amount of water at once, but somewhat less. We then measure 10 C.C. of a solution of urea which contains in 200 C.C. four grmms. of pure urea, and add from a pipette

the approximatively diluted mercurial solution, until a few drops of the mixture upon a watch-glass, gives, with a solution of carbonate of soda, a decidedly yellow color.*

Suppose, for this purpose, we have used 19.25 C.C. of mercurial solution, then for each 192.5 C.C. of this solution, we must add 7.5 C.C. of water, and make a new and final test. If, after the addition of 20 C.C. of mercurial solution to 10 C.C. of the above described solution of urea, the appearance of the yellow color is decided, then the mercurial solution can be used for the determination of urea in urine.†

*In order to obtain this solution we dissolve four grms. of pure urea in water, and dilute with water until the volume measures exactly 200CC; by dissolving four grms. urea in 200 C.C. of water, we would obtain 201.75 C.C. of fluid, therefore 1.75 C.C. too much.

† *Observation.*—This test fluid is graduated by a solution of urea, which contains two per cent. of urea; 15 C.C. of this solution requires for the precipitation of the urea, as well as to indicate its completion, 30 C.C. of mercurial solution; we obtain 45 C.C. of mixture, in the whole of which exists $30 \times 5.2 = 156$ milligrms. of oxide of mercury; each C.C. contains about 3.47 milligrms. of oxide of mercury. If the 15 C.C. of the solution of urea contains four per cent. of urea, and 60 C.C. of mercurial solution added, then we have 75 C.C. of mixture, in which are 312 milligrms. of oxide of mercury; in each C.C., 4.16 milligrms., therefore, 0.69 milligrms. of oxide of mercury more than is requisite to produce the original color. We will, therefore, be liable to an error, as experiments have shown, in the analysis of urine, when the amount of urea is increased, whereby the apparent amount of urea will be diminished. In the above stated case we would have added, until the appearance of the original color, not 60 C.C., but only 59.37 C.C. of mercurial solution. To avoid this error, we must, when experimenting upon 15 C.C. of urine, add to every C.C. above 30 of the mercurial solution that has been used for the precipitation of the urea, half the number of C.C. of water, *before* the test is made with carbonate of soda; if, for instance, we use 20 C.C. more, we must add 10 C.C. more of water. It will always be found necessary, after the addition of water, to add a few drops of mercurial solution, to obtain the indication of a complete precipitation. From the same reason, we must, in those cases where the amount of urea is only one per cent., add for 15 C.C. of urine, not 15 C.C., but 15.3 C.C. of mercurial solution. To avoid this mistake, which increases the amount, we must from each 5 C.C. of mercurial solution less than 30, that have been used, subtract 0.1 C.C. If we, therefore, use 25 C.C. of mercurial solution for 15 C.C. of urine, the amount, 249 milligrms., would be expressed by 24.9 C.C. of solution, &c., &c.

For the determination of urea in urine, we must first prepare a mixture of two vols. of aquæ baryta, with one vol. of a solution of nitrate of baryta, both saturated cold; and mix one vol. of this alkaline fluid with two vols. of urine. For this purpose, use a small glass cylinder of the desired size, which must be first filled *twice* with urine, even to overflowing. The mouth of the cylinder must each time be covered with a glass plate, so that the excess may flow off. The same cylinder must be filled in the same manner, *once* with the solution of baryta, and this poured into the urine in a beaker glass; a precipitate arises from the mixture which must be filtered. From the whole mixture we must measure out for each analysis, 15 C.C., which corresponds to 10 C.C. of urine. Into this volume of urine, before neutralizing it, (as is done in the determination of the chlorides,) must be poured from a burette the graduated solution of pernitrate of mercury, continually stirring it, and when no further precipitation (no thickening of the fluid) is perceived, then test it by pouring a few drops with the precipitate from the beaker glass on to a watch glass, and adding to it a few drops of the solution of carbonate of soda, best done from a caoutchouc pipette. If, after a few minutes, the mixture retains its white color, then more mercurial solution must be added to the mixture in the beaker glass, until, by testing with carbonate of soda, a decided yellow color is perceived. Then read off the number of C.C. used, and correct the number obtained according to the contents of urine, in the manner given above. Should the urine contain no chloride of sodium, then every thing has been done for the quantitative determination of the urea. A series of experiments have shown, that if there is from 1—1½ per cent. of chloride of sodium in urine, it exercises, by means of the pernitrate of mercury, an influence upon the determination of the urea. For instance, if we add 20 C.C. of the graduated mercurial solution to 10 C.C. of a solution of pure urea, then carbonate of soda will produce in the mixture a decided yellow color, of precipitated oxide of mercury. But if we add to the mixture 100—200 milligrms. of chloride of sodium, then try the test, the yellow color does not appear from the addition of carbonate of soda. To effect this, 1½—2½ C.C. more of mercurial solution must be added. On this account the determination would be given too high by 15 to 25 milligrms. Such

is the case also with urine ; containing more than two per cent. of chloride of sodium, the error does not increase with the increase of the latter, but remains constant with certain fluctuations.*

In a urine, now, that contains from one to one and a half per cent. of chloride of sodium, we can, without anything further, obtain the exact number of milligrms. of urea in 10 C.C. of urine, by subtracting 2 C.C. from the number of C.C. of mercurial solution used, and also, if the amount of chloride of sodium fluctuates with different individuals, then the difference obtained in the amount of urea is exact, and can be compared with others. In the absolute quantity only is there an error, which, uncorrected, would amount to 15—20 milligrms. in 10 C.C. of urine.

* In order to explain this peculiarity, it is evident, from the method of determining chloride of sodium by means of pernitrate of mercury, that a solution of urea containing chloride of sodium will not precipitate by nitrate of mercury, until the former is completely converted into bichloride of mercury. In a solution of 200 milligrms. of urea and 100 milligrms. of chloride of sodium in 10 C.C. of water, to which is added 20 C.C. of mercurial solution, the excess of mercurial salt, which should have given the yellow color upon the addition of carbonate of soda, would not exist in the form of a nitrate, but as a bichloride of mercury, and it is evident that the change of the indication of complete precipitation is caused by the formation and presence of this bichloride. Instead of 3.46 milligrms. of oxide of mercury in the form of a nitrate, the mixture contains an equivalent of mercury in the form of bichloride. The reason why the limit of reaction does not extend when the chloride of sodium exceeds two per cent., Liebig explains by the following: If, to a solution of bichloride of mercury, diluted with water to such a degree that it yields with carbonate of soda a brown yellow precipitate of oxide of mercury, be added a few drops of nitric acid, and then carbonate of soda added to it, it will remain clear, no precipitate forms, or at least only a weak whitish cloudiness, out of which, after long standing, brown yellow leaflets will be deposited. In this condition the excess of bichloride of mercury exists in the mixture of urea with the mercurial solution ; it contains the greater part of the nitric acid of the latter in free condition. By this nitric acid, a part of the carbonate of soda will be converted into bicarbonate, which does not precipitate the bichloride. If the mixture, in consequence of a greater amount of chloride of sodium, contains a greater amount of bichloride of mercury, then the free carbonic acid is not sufficient to prevent the precipitation of the oxide of mercury ; there arises, therefore, a brownish yellow precipitate.

In a determination, in which the absolute quantity of urea is sought for, the chloride must be removed, and the chloride of sodium be converted into nitrate of soda. This takes place by precipitation through nitrate of silver. For this purpose, we must prepare a silver solution from 11.601 grmms. of melted nitrate of silver, dissolve it in water, and dilute it so that the volume of solution consists of 400 C.C. .1 C.C. contains 29.01 milligrms. of nitrate of oxide of silver, corresponding to 10 milligrms. of chloride of sodium. The mercurial solution (the preparation of which, for determining chloride of sodium, has been given above) corresponds with this solution; both exhibit the same amount of chloride of sodium. If we, accordingly, add to 10 C.C. of urine 12.5 C.C. of mercurial solution until the appearance of the cloudiness; in a similar volume of urine, by adding 12.5 C.C. of solution of silver, the chloride will be completely precipitated, and no silver remain in solution.

Suppose we have used to 15 C.C. of urine, precipitated by solution of baryta (containing 10 C.C. of urine,) 17.5 C.C. of mercurial solution, then measure with the pipette,

30 C.C. of the same urine, and add
35 “ of silver solution.

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65

Now filter, and take from the fluid filtered, for the test, half the amount of the mixed fluid—therefore, 32.5 C.C.—in which exists 10 C.C. of urine. This is now mixed with the graduated mercurial solution, and the amount of urea obtained in the manner described, regard being paid to the dilution in consequence of the silver solution that has been added.—*Annalen der Chemie und Pharmacie*, 85. Bd. 3, Heft. page 289. 1853.

NOTE.—The reader should bear in mind, that the only difficulty in the above processes consists in the first preparation of the test liquids. If they are once correctly made, and in sufficient quantity to last through a series of experiments, each examination of urine can be made with great accuracy, in a very few minutes, and without much exertion of skill, on the part of the operator.—*Translator*.

BIBLIOGRAPHICAL NOTICES.

Pneumonia : Its supposed connection, Pathological and Etiological, with Autumnal Fevers : including an Inquiry into the Existence and Morbid Agency of Malaria. By R. LA ROCHE, M. D., Member of the American Philosophical Society ; of the American Medical Association ; Fellow of the College of Physicians of Philadelphia ; Corresponding Member of the Imperial Academy of Medicine, and Foreign Associate of the Medical Society of Emulation of Paris ; of the Academies of Science at Turin, Copenhagen, Stockholm and Nancy ; and of the Medical Societies of Marseilles, Lyons, &c., &c.

This work is a valuable contribution to medical literature, befitting the importance of the subject investigated and the character of the author for patient and extended researches, made in a conscientious and truth-seeking spirit. It places before the reader not only the opinions held on marsh exhalations and malaria in general, from an early period down to the present day, but also a large and well marshalled array of facts in support of the popular belief of the existence of a subtle poison, which causes periodical fevers, in a fearfully large number of those who are exposed to its operations. We ought not to be obliged to insist on the importance of inquiries of this nature, in a practical point of view ; since a knowledge of the cause of a disease, though it may not suggest a remedy, has higher claims even than this, in its pointing out the means of prevention, and thus bringing our philosophy to bear on the masses, in place of uncertain dealings with individuals. But we are afraid that this natural induction from studies in etiology does not present itself readily to the minds of a majority of our medical brethren, too many of whom would narrow our noble science into a collection of empirical dicta, under the title of practical medicine, and impliedly, if not by direct proscription, consign to oblivion its rich literature, the history of all former times, with its encouragements and warnings, its records of great truths, and grave judgment on various heresies of doctrine. Such opinions coming from the illiterate vulgar need not excite surprise ; but when uttered by members of a liberal profession must induce fears of a

decline of learning and an abandonment of the exercise of those higher faculties which distinguish man from the animal mechanic, that builds its house after one invariable style, knowing no change and seeking none. The beaver, the ant, and the bee are very practical bodies; and if they had some of our disparagers of learning and progress to be exponents of their opinions, they would, doubtless, pity a Vitruvius, a Palladio, a Bramante, and a Wren, as speculative enthusiasts filled with vain theories on the construction and arrangement of edifices, which should combine convenience with ornament, majestic proportions with beauty of detail, and exhibit the greatest variety of adaptation to man's use for the worship of his Creator, the meeting of national and corporate councils, and the gratification of his tastes by the introduction of the fine arts, and of his comfort in domestic life by appropriate architectural aids.

There are villages in Armenia which consist of houses made by excavations in the hills, so as to have no entrance except on the side; and others are entirely subterranean, with only small conical apertures in the roof for the admission of a few rays of light and the escape of smoke. "The traveller," says the Rev. Mr. Perkins, the missionary, "often comes upon these villages without any previous notice; and when travelling in the night, his first knowledge of being among human habitations may be, that he finds himself, with the animal he rides, upon the roofs of their houses." These serve both as dwellings for the biped human bodies, and stables for the quadrupeds. The people are mostly of the shepherd class, and live in the same manner as their ancestors, whom Xenophon encountered in the memorable retreat of the "ten thousand," did. They, good practical souls, are no theorists, no book-worms! They are not vexed with cattle shows or agricultural fairs, or any such disturbing exhibitions; nor are their brains perplexed with disquisitions on commerce and political economy in general. The oven in which they bake their bread, serves, also, in conjunction with the breath, and cutaneous exhalations of themselves and their brute companions, to keep them warm; and beyond this, what need they care for such speculative subjects as the functions of respiration and calorification, and the accumulation of carbonic acid in perilous, and it must be, at times, often fatal quantity. They have expe-

rience, too, on their side. Did not their fathers, and their grandfathers, and their great-grandfathers, if they trouble themselves with so much historical retrospection, live as they now live, and as they see their children living under their eyes—a practical refutation of all the new-fangled notions of pure air and ventilation, and solar light, being necessary for the enjoyment of full health by the animal creation? As to the comparisons drawn from vital statistics, they must be deemed to be quite superfluous and inapplicable to them. Can they not bear to be sweated, and to be smoked, and to breathe a close, stinking air better than the inhabitants of any above-ground village in the land, and what better test of strength and endurance need they offer? Some will smile at this process of reasoning, and may call it inconclusive; but it is quite as logical as that resorted to by persons who speak lightly, and even sometimes with an air of commiseration of those who are proficient in learning and addicted to literary research, on the plea of the incompatibility of such pursuits with the active and successful discharge of professional or of other duties; as if a knowledge of the difficulties which others, similarly situated as ourselves, encounter, would increase our own; or as if the means by which they achieved success would weaken our efforts to obtain the like pleasant result. Is each successive traveller over a new and imperfectly explored country to refuse to be benefited by the recorded experience and admonitory cautions and reflexions of others who have made the journey, for the reason that he ought to trust entirely to his own observations, lest his resolution would be daunted and his senses enfeebled by his knowing the impressions made on those of others? He is bound, forsooth, if he would not give up his character for independent thought and action, to discover, for himself, how he is to thread his way through a mountain defile, where to ford a river, what precipice to shun, near which his path lies, what spring he may expect to meet in the desert, with whose waters he can slake his thirst and revive his fainting frame. He may, indeed, never reach his journey's end; he may be drowned in the river, or fall headlong over the precipice, never to rise again, or sink down exanimate in the desert; but his friends will, in any of these events, have the proud satisfaction of knowing that he evinced his self-reliance to

the last, and died, indebted to no man for information that might have saved his life, and enabled him to return home, and to add his share to the lore accumulated by preceding travellers.

In like manner a young physician, about to enter on the eventful career of the practice of medicine, may be told to rely exclusively on his own observations and resulting experience, to mistrust the language of books, and to avoid becoming an author. He cannot, however, reach sane conclusions in pathology and therapeutics, at the bed side of his first patients, by intuition. He must have had some guidance, if it is only the empirical experience, in dogmatic form, of his first preceptor, and a certain amount of elementary knowledge, seasoned with the condiments of various speculations and theories of his professors, during collegiate periods comprised within, for the most part, the narrow limits of eight months. Add to these a few clinical observations made in the practice of his preceptor, and in the hurried visits during a short period in a hospital, while attending lectures, and we see all the preparations made on the part of a young physician to combat disease in its multifarious aspects and Protean changes.

Under these circumstances will he dare, inexperienced and unaided, to attempt to meet the exigencies of his position, in which not only his own reputation, but, still more, the life of his patients is at stake; or will he not rather turn for support and counsel to the veterans in the profession, who, in their several works, indicate the dangers in the way and the means by which these have been avoided and overcome? The question ought to admit of but one answer. In such company he gains not only counsel and warning, but often sympathy, encouragement and example, not imposed on him with an air of offensive superiority, but in a spirit of kindness and love of science. Some of these writers may, we grant, express themselves in rough language, some in a quaint and affected style; but we can smile at these blemishes, in consideration of the sterling excellencies of faithful record, judicious reflexions and careful inferences. Strengthened by these aids, the young physician, if he be a regular and candid reader, adding his own observations, at the same time, whenever clinical opportunities are presented to him, will find himself pro-

jected, as it were, a decade of years in advance of his age, by his having acquired a knowledge of applied pathology and therapeutics, to meet his own immediate wants and purposes. It may be asked, who are these veteran authors? Have they not become so at the expense of their reputation as useful and successful practitioners; or, in other words, are not the makers of books, to use the language of trade, on that very account less able and willing to compete successfully with their less literary, if not illiterate, professional associates, for business and its emoluments? We proceed at once to answer this question by an appeal to the lives and labors of some of the eminent men who adorn the annals of medicine. We open the appeal by asserting what will be readily proved by evidence soon to be adduced, viz., that good writers must have been good readers and industrious students.

Hippocrates, whom we call the Father of Medicine, was not the first to give it a systematic character, or to keep a record of cases of disease and arrange them under separate heads. He was preceded by a great number of priest physicians, who, like himself, were of the privileged order of Asclepiadæ, or ministers in the temples of Esculapius. From the records kept by them and the votive tablets of grateful patients, in which their diseases and their cures were noted, Hippocrates derived a no small portion of the materials for his works, especially of those on Prognosis, and the Aphorisms; and hence in one sense he may be called a compiler. That he was a student of the past as well as an observer of the present is evident from the large use he made of the library of the Temple of Health at Cnidos, one of the three most eminent medical schools of the time; and that there was an antecedent literature is proved by his treatise on Ancient Medicine. He was trained to a knowledge of dietetics by the perusal of documents preserved in the Asclepion of Cos, one of the many Asclepia erected in various parts of Greece, as receptacles for the sick, and to which libraries were attached. Herodicus was his teacher in applying gymnastics to the cure of disease. Thus prepared by careful study and observation, Hippocrates, who was the son of a physician, "no doubt commenced the practice of his art in the Asclepion of Cos, as his forefathers

had done before him,"* but wishing still further to enlarge his field of experience, he visited Thrace, Delos, Thessaly, and many other regions, including Asia Minor, and he practised and probably taught his profession in those places and countries. He thus procured matter for the composition of his great work on Waters, Air, and Places, and of that on Epidemics.

If Hippocrates had contented himself with the routine empiricism of the Asclepion in which his forefathers ministered and practised, and if he had eschewed reading and literature, like some of our self-relying and illiterate physicians, who, amusingly enough, think that they are imitating the sage of Cos by their crudities, where would be our knowledge of ancient Greek medicine, where his posthumous fame, and the lore and the philosophy in example and precept, which he bequeathed to posterity? Lost to us would have been all this, as well as the noble code of ethics contained in his works. Hippocrates, we repeat, was an industrious student, read much, observed much, was an eminent practitioner, and at the same time, a writer of great and, for now more than twenty-two centuries, continued reputation. His learning did not destroy his originality, nor was he less useful and successful in practice because of his eminence as an author.

Galen, the most voluminous of writers, who treated of every branch of medicine and its collateral topics with great copiousness, and wonderful learning and power, was not prevented, on this account, from being a distinguished and an esteemed practitioner of his art, and the favorite physician of four Emperors. Paulus Ægineta, was eminent as a surgeon and accoucheur; a fact, doubtless, of grateful acknowledgment to thousands benefited by his skill and kindness during his life: but what would this have availed posterity, and how would we, at this day, know anything of the practice and precepts of many of his predecessors, were it not for the many volumes which he compiled on these subjects? His learning does not seem to have stood in the way of his becoming as skilful an operator as any mere mechanic in the art of surgery.

The Arabian school of medicine would furnish many examples

* The Genuine Works of Hippocrates, translated from the Greek, with a Preliminary Discourse and Annotations. By Francis Adams, LL. D., Surgeon. Sydenham Society Edition, 2 vols.

in favor of the union which we advocate ; but we shall merely mention one of the most distinguished among them, Rhazes, whose medical lore and writings were only equalled by his great tact in detecting the nicest shades of difference in the semeiology of diseases, and by his skill in curing them. In describing the rules for choosing a good physician, the Arabian writer, just named, tells us that the person to be selected ought to combine his own observations with the assiduous reading of good authors, for it is impossible, of one's self, to see all and to experiment on everything ; and the learning and experience of a single individual, compared with the learning and experience of all men in all ages, resembles an attenuated rill by the side of a great river.

Coming down to more modern times, we meet with the name of Ambrose Paré, the father of French surgery, who, amid the din of war, in the hours snatched from professional occupations in the camp and on the field of battle, as a military surgeon, found time to educate himself anew, and to make up, by assiduous study, for deficiencies in early life. He was not satisfied with being the first surgeon of his day, nor did he attempt to cover his lack of literary honors by affecting to underrate their value ; but he determined to be an Associate of the College of Surgeons of Paris, and asked to be allowed to undergo an examination before that body. After being subjected to this trial, he was made, successively, Bachelor, Licentiate, and Doctor in Surgery. His mind thus stored with abundant knowledge, derived from personal experience and accurate observations, and strengthened by a study of the ancient medical classics, he was prepared to benefit posterity by his numerous writings, which would fill five or six of our common sized octavo volumes.

Baillou, the French Sydenham, and precursor of the celebrated Englishman, by nearly a century, was a professor of belles lettres and commentator on Aristotle, before he obtained the honors of the medical doctorate ; but neither these attainments nor his subtle logic interfered, as some of our *practical* brethren might apprehend, with his continued observation of disease, made in the true Hippocratic spirit : nor did his close engagements in this way, and his ever ready services to the poor, prevent his putting on record the fruits of his large experience and study,

more especially on epidemics and fixed constitutions of the atmosphere. His works, published from his manuscripts, after his death, amounted to several folio volumes.

Portal gave lectures on anatomy in Montpellier before he had attained the age of manhood, and was an author, by a series of papers on morbid structure and anatomical deviations from nature, when he was twenty five. At this time, also, he edited the *Historia Anatomico-Medica* of Lieutaud. He continued to be a writer during a long life, so as to leave behind him twenty-seven volumes octavo, on a great variety of subjects, including "Medical Anatomy," and the "History of Anatomy and Surgery;" and all this without preventing him from engaging in a large and lucrative practice, including professional attendance on royalty itself, in the person of Louis XVIII. He had the yet higher honor of being the friend and physician of Buffon and D'Alembert. To his other duties Portal added those of a Professor's chair, for a period of forty years, during the greater part of which he taught with untiring zeal and industry. Advanced age neither diminished the vigor of his faculties nor abated his literary and professional ardor. When he was sixty-nine years old he published his work on Apoplexy; when seventy-one, that on the Liver; at eighty, on Dropsy, and at eighty-five, on Epilepsy. He survived until he had passed his ninetieth year.

Among Portal's contemporaries of surgical eminence, the names of Boyer and Larrey occur to us at the moment as having operated and written, we will not say with equal facility, but, at any rate, to such an extent as to show that a large exercise of the pen does not render the hand less steady in the use of the amputating knife, the bistoury and the lithotome.

At the present time, among the eminent men who now figure in the different departments of medicine, in Paris, we may cite M. Velpeau, for the happy union of facile elocution, and copiousness and learning as a writer, with marked ability and success as a general practitioner, and especially as a surgeon and pathologist. Thanks to Drs. Meigs and Mott, who kindly undertook the, to them, grateful office of translating and editing his works on midwifery and surgery, the name and merits of Velpeau have been made familiar to the profession in the United States. The gentlemen first named confirm, in their own professional career,

our position, that the being an author does not diminish one's usefulness and reputation in the exercise of practical medicine. To the same purport the name of the late Dr. Dewees offers itself. Faith in his capacity, as an accoucheur and physician, was not shaken in the minds either of the public at large or of his professional brethren, by his being the author of many books on different branches of medicine.

Of the many eminent men in all the departments of medicine whom Italy has produced, we shall content ourselves with the mention of two, whose names would probably first present themselves to the mind of the purely practical physician. They are, Morgagni and Scarpa; companions, for a while, in the relation of preceptor and counsellor on the part of the former; and of admiring pupil and secretary on that of the latter. Some curiosity may naturally be felt, to know what were the early favorite studies, preparations, in a manner, for the subsequent labors of Morgagni, the great anatomist, the prince of anatomical pathologists. Did he amuse himself in boyhood by torturing insects and shooting and then dissecting birds, and by making observations on the viscera of sheep, which had died of the rot? By no means. Under a mother's tender care, this period of life was passed in earnest study, and with such success, that at the age of fourteen years he was made a member of a literary society, called the Academy of Forli, his native town. Nothing hurt by being thus early imbued with learning, he repaired to Bologna to prosecute his medical studies; and there he soon took the place of Valsalva, as Demonstrator of Anatomy, and in a few years after issued the first part of his *Adversaria Anatomica*. For a while he practiced medicine with great success in Forli. How little he was disposed to claim exemption from literary labors, or to be content with the reputation, considerable as that was, acquired in earlier life, we learn from the fact of his being eighty years of age, when his great work *De Sedibus et Causis Morborum* was first published. He survived this event more than nine years, and it was during this period, when his sight failed him, that Scarpa, then prosecuting his medical studies in the University of Padua, became his favorite pupil and his secretary. In the last mentioned capacity Scarpa read the works, and the letters asking the advice of Morgagni, received from different parts of

Europe, and afterwards wrote replies under the dictation of his master.* The amusement in which both participated with great relish, was reading the Latin classics, and especially Plautus, of whom Morgagni was very fond.

Scarpa, himself, was early taught the Humanities, and imbibed a fondness for polite literature, which never left him, and which was the solace of the latter period of his life, when he had retired to a villa not far from Pavia. There he formed a small but a prized collection of paintings and other objects of art, and indulged in his declining years, as he had in his early ones with Morgagni, in reading the Latin classics, among whom Virgil was his favorite and constant companion. With such tastes and culture, we cannot be surprised that Scarpa should have become a prominent laborer in the field of medical literature, acting as he did on the belief, which he held in common with Celsus, that the talent of writing is superior to that of speaking, inasmuch as it perpetuates a knowledge of the different branches of medical science, and assures their progress, at the same time that it assigns to each its appropriate place of honor. His treatises on Diseases of the Eye, Hernia, Club Foot, Aneurism and Ligatures, while they record his clinical experience and evince his literary ability, bear evidence also of his continual reference to healthy and morbid anatomy on which he rests his conclusions. He wrote with equal success on various anatomical subjects, as we may infer from his essays on sight and hearing, and on the cardiac nerves, structure of the bones, ganglial nerves, &c. All this literary labor, alternating with close observation on objects of comparative anatomy and morbid changes of structure, was carried on during the long period in which he was Professor of Anatomy in the University of Pavia, teacher of Clinical Surgery, and engaged in private practice.

We are afraid even to begin an enumeration of the long list of Germans who have combined medical literature with the practice of medicine. Two immediately present themselves to the mind of every English and American reader, although, in fact they were natives of Switzerland, and resided at different pe-

**Maestro*, as we have heard the hospital students in Florence call their clinical chief, when saluting him in the morning.

riods in that country. We refer to the great Haller and to Zimmerman. Haller wrote verses in Latin and German when he was but ten years of age, and up to fifteen years was devoted to literature and poetry. He graduated at eighteen, and at twenty-one, after having travelled in different countries of Europe, he returned to his native city of Berne, and engaged with success in the practice of physic for several years; during part of which time he had charge of a hospital, and delivered lectures on Anatomy. He was not afraid of damaging his professional reputation, at this time, by the publishing of a collection of odes and poetical epistles in German; thus, for the first time wedding anatomy to immortal verse. He gave farther proof of the variety of his accomplishments, during his residence in Berne, by preparing a critical catalogue of all the books in the public library of that city; and arranging after a new method five thousand ancient medals, of which he also prepared a chronological table. Called to Gottingen to occupy in the University the triple chair of anatomy, botany and surgery, he engaged in a course of teaching, and in a series of writings and studies on these branches, and, in a still more enthusiastic manner, on physiology, which have placed him in the foremost rank in medical science. The imagination of the poet offered no impediment to the patient reading, by the botanist, of the works of two hundred and sixty eight writers on botany, whom he quotes in his own great work on the indigenous plants of Switzerland, when describing twenty-five hundred species belonging to that country. But, great and meritorious as were his labors in this way, they were excelled by his immortal Elements of Physiology,* in which this branch was for the first time placed on a scientific basis: nor did he overlook practical medicine and surgery, of which he has collected cases in number to make up several volumes. On his final return to his native city, there to take up his abode for life, he was entrusted with different administrative offices, which he filled with marked ability; thus showing, in practice, that knowledge of the theory of which he proved himself a master in his treatises on political economy. If it be said that few had the genius and versatile talents of Haller, it ought to be added that quite as few have possessed his zeal for literature and science, his methodical

**Elementa Physiologiæ Corporis Humani.*

habits of study, and above all his unflinching and unwearied industry. Without being ascetics, we are bound to believe that some of his success was due to his habitual temperance, the result of a vow which he made, after a frolic in early life, that he would never more drink wine,—nor did he.

Zimmerman, the pupil of Haller, known to the many by his work on Solitude, and to the profession by his admirable treatises on Experience, and on Dysentery, was a learned man, an elegant writer and an actively engaged practitioner of medicine in his native town of Brug. Cullen thus speaks of the author, in connection with one of the treatises just named: "Zimmerman is the first person who has ever given the true manner of treating dysentery." He resided for some time in Hanover, as physician to the King of England when the latter visited his electorate.

English medical literature furnishes numerous examples of the union of professional acumen and great success in the business of practice with the labors of the desk. The learned Freind was early distinguished, during his collegiate life at Oxford, as the editor of an oration of Eschines against Ctesiphon, and of that of Demosthenes *de Coronâ*, to both of which he added an elegant Latin translation. He, also, studied mathematics and applied himself to anatomy and chemistry, at the same time that he perused with great diligence all the best writers of physic, both ancient and modern. After he had been engaged in practice, he filled the chair of chemistry at Oxford; and, in the following year, was made physician-general to the British army under the Earl of Peterborough in Spain. At a subsequent period, he filled the same post in Flanders, under the duke of Ormond. On his return to London, he edited the first and third books of Hippocrates on Epidemics, and published various essays and letters. It was during his imprisonment in the Tower, for alleged conspiracy against the Hanoverian dynasty, that he began his celebrated work, "The History of Physic, down from the time of Galen to the beginning of the Sixteenth Century." His learning and his studies did not prevent him from being largely engaged in practice, under the great fatigues of which, indeed, his health gave way; and he died at the comparatively early age of fifty-two.

Still more renowned was Freind's intimate associate, Dr. Mead, who, notwithstanding his varied learning, large and lucrative

practice, elevated social position, and his possessing a fine collection of paintings and other objects of art, and a large library, is said, by his singular humanity and goodness, to have "conquered even envy itself." His industry must have been equal to his learning, and both were, if possible, surpassed by his generosity, which made him the munificent patron of men of learning and science, both at home and abroad. His extensive correspondence alone, without occupation of his time required by the composition of his different treatises on medical subjects, might have afforded to others, were they similarly situated, an excuse for neglecting the active duties of the profession. But so far was this from being the case that his services were ever promptly rendered to both rich and poor.

Passing to a name of a different order, we meet with John Hunter, the most original genius of the age, whose investigations into the structure of the several classes of animated beings, and the connexion between organization and the display of vital phenomena, were made to illustrate physiology and surgical pathology, who was both a surgeon in hospital and in private practice, and an author of many books. We must all wish that he had been previously more of a reader of books and somewhat conversant with belles lettres, so that he might have been enabled to present his discoveries, and his reflections and conclusions, in a more lucid and consequently more instructive manner.

Abundant learning and highly cultivated taste, with no little proficiency in music and the arts of design, contributed to set off to increased advantage the professional knowledge of John Bell, and to render the usually dry subjects of anatomy and surgery, under his pen, both instructive and entertaining. His eminence as a practical surgeon was undisputed. Charles Bell, with less brilliancy of intellect, but probably of sounder judgment than his brother John, was possessed of similar accomplishments; but he was not, on this account, precluded, as the professional mechanics might, *à priori*, have feared, from making those brilliant discoveries in physiology, which will render his name ever memorable, even if we choose to overlook his Institutes of Surgery and his Anatomy of Expression, and the large share which he had in the joint work by himself and John Bell on Special and Descriptive Anatomy.

The names of Astley Cooper, Lawrence, Brodie, Abernethy and others, will immediately present themselves to the minds of our readers, in support of the point we now affirm, viz.: that great professional eminence, a result of continued professional labor and study, is not incompatible with an indulgence in letters, and the writing of many books. The union implies, it is true, talents and cultivation, and methodical industry of the most persevering kind, which, when displayed, must place their possessor in the high ranks of his professional compeers, and entitle him, at all times, to their gratitude, if not their veneration. We do not wish to be understood as intimating that a learned physician must necessarily be a good practitioner; but we do believe that learning, so far from being an obstacle, will, for reasons already assigned, greatly increase the probability of his becoming one; and that if he fails, owing to mental deficiency or indolence, the failure will be more signal, if not positively disastrous to his patients, by his want of learning.

If what we have written be deemed too long an introduction to our notice of the volume of Dr. La Roche, the blame must rest, in a measure, with the author himself; for, his own mental characteristics and general and medical attainments and experience, joined to practical tact and self-possession in the sick room, chiefly suggested the course which our remarks have taken. They are also in a spirit similar to that of his Introduction, in the form of a letter to his friend, Doctor C. D. Meigs. In it he very happily rebukes the eagerness of youthful sciolists to bring out opinions on the most important questions in medical science and practice, without adequate preparation by previous inquiry, and often in entire ignorance of what had been written on the subject, and fully canvassed and discarded as untenable. He justly remarks, that "the stuff of which medical reformers and leaders in scientific advancements are made is a rare product; that in all parts of the world, and here particularly, more than elsewhere, readiness and smartness have but too often been mistaken for strong powers of thought, and superficial information has taken the place of sound and accurate learning." He believes "that we have, so far as medical literature is concerned, a character, not to uphold merely, but to establish;" and hence, he adds, the necessity of improvements in the various branches of medical

science. Among the baleful influences which retard the progress of sound medical literature among us, the author specifies hasty opinions at variance with those deemed by the most enlightened portion of the profession everywhere to be fully established. Sometimes the novelty claimed by its promulgator is such merely from his own ignorance of medical literature. Sometimes, as pointed out in the letter, the cause of the repeated efforts at revolutionizing medicine in some or all of its parts, is due to a craving after notoriety, or a desire on the part of a young writer to see himself in print; and, at times, to a self-esteem which makes a man believe "himself endowed with the faculty of unravelling the most intricate mysteries of the science, and of discovering truths heretofore concealed from the notice of medical investigators since the days of Hippocrates to the present." Another class, of higher attainments and position, and moved by conscientious considerations, err for "the want of a proper balance between the fancy and the judgment;" while others, again, take a devious path, because in the common beaten one they do not find everything they expected. Hasty generalizations from impatience of thorough inquiry, and inability to discover the true relation of cause and effect, are, also, impediments to our reaching the truth. Plagiarism is stigmatized in becoming terms; but with a severity of stricture on our home writers, as if they were the greatest sinners in this respect, which we do not believe to be entirely merited. The sin is great, but we think inquiry would show, that it is not greater on this side of the Atlantic than on the other.

We find that we have reached if not exceeded our prescribed limits in this number of the Journal, and must, therefore, reluctantly postpone the publication of our remarks on the body of this erudite and most valuable work to the next number.

(To be continued.)

The Pathology and Treatment of Pulmonary Tuberculosis; and on the local medication of Pharyngeal and Laryngeal Diseases, frequently mistaken for, or associated with, Phthisis. By JOHN HUGHES BENNETT, M. D., F. R. S. E., Professor of the Institutes of Medicine and of Clinical Medicine in the University of Edinburgh, &c. Edinburgh: Sutherland & Knox. 1853.

We have read this brochure of Dr. Bennett with interest and pleasure, as well on account of the views it contains, as of the confidence we have in the judgment and opinions of the author.

He endeavors to show,—1st, that tubercular diseases will heal of themselves if the faulty nutrition of the system can be removed; 2ndly, that with this object our efforts should be directed to the digestive, rather than the respiratory system; 3dly, that the kind of abnormal nutrition which exists is dependent on increased assimilation of the albuminous, and diminished assimilation of the fatty portions of the food, and it is mainly in this direction that he calls attention to the pathology of tuberculosis and the therapeutic indications. The author adopts as the basis of his argument the importance of oil in the economy as an adjuvant to the plasticity of albumen, and he supports the doctrine by reference to the constitution of milk, the natural food of young mammiferous animals, and to the egg, which constitutes the source of the tissues of oviparous animals, in both of which, viz., the milk and the egg, oil and albumen are largely found.

The researches of chemists such as Prout and Liebig, point to the same generalization when they assert that carbonized and nitrogenized food are necessary to carry on nutrition, inasmuch as oil is the type of one, and albumen of the other, while the mineral matter is dissolved in both.

The successive changes which occur in the nutritive process for the purpose of assimilation are thus summed up by the author: 1st, introduction into the stomach and alimentary canal of organic matter; 2d, its transformation by the digestive process into albuminous and oily compounds—a chemical process; 3d, the imbibition of these compounds through the mucous mem-

brane in a fluid state, and their union in the termini of the villi and lacteals to form elementary molecules; 4th, the transformation of these, first, into chyle corpuscles; and, secondly, into those of the blood, through the agency of the lymphatic glandular system, which is a vital process. If the fluid thus and subsequently still further elaborated fails in the first stages of the process, the remaining ones must also be interfered with, and a material having feeble plastic powers is deposited in the tissues for their nutrition.

In tuberculosis, the author believes that these elaborating processes are interfered with by a faulty beginning in the digestive function. He quotes Sir Jas. Clark and others in support of his own observations, that phthisis is ushered in with a bad and capricious appetite, a furred tongue, and *unusual acidity** of the stomach and alimentary canal, which symptoms often accompany the disease throughout, becoming more violent towards its close.

By this acidity, the albuminous constituents of the food are rendered easily soluble, and their stomachal digestion uninterfered with; but the case is different as regards the oleaginous matters; they require for their assimilation the action of an alkaline pancreatic secretion, by which, as Bernard has shown, they are emulsified and rendered easily absorbable. In the acid condition referred to as appertaining to phthisis, these secretions are more than neutralized and rendered incapable of emulsifying the fats and preparing them for absorption. Hence an increased amount of albumen enters the blood to the exclusion of the oily matter of the food, whose place is supplied by the absorption of the adipose tissues, causing the emaciation which characterises the disease.

In the mean time albuminous exudations are deposited in the lungs, constituting tubercle. This, in its turn, being deficient in the necessary proportion of fatty matter, is incapable of forming elementary molecules so as to constitute nuclei for further development into cells; they therefore remain abortive and constitute tubercle corpuscles. Thus a local disease is added to the constitutional disorder, and that compound affection is induced called phthisis pulmonalis—consisting of symptoms attributable

*The italics are our own.

partly to the alimentary canal, and partly to the pulmonary organs.

From the above brief exposition of the author's views, the therapeutic indications are evident, and their application will be successful in proportion to the power—1st, of improving the faulty nutrition which is the cause of the exudation assuming a tubercular character; to accomplish which the author urges the use of cod liver oil. 2d, of favoring the absorption of the exudation already poured out, by abstinence from lowering remedies and by counter-irritation. 3d, of preventing the recurrence of fresh exudations by careful hygienic regulations, climate, exercise and good diet.

Under the head of special treatment, there is nothing either striking or novel; and the volume concludes with a chapter on the use of local applications to the pharynx and larynx, in cases mistaken for, or associated with, pulmonary tuberculosis. In this, the well known practice of cauterisation revived by Dr. Green, of New York, is highly commended, and cases illustrative of its efficacy introduced.

To say that we have been pleased with the book would be too faint praise; we have been more than pleased: it has deeply interested us, and has elucidated some points hitherto obscure, and given us a pathology of tuberculosis, on the whole, more satisfactory than any we have met with; and although, as the author remarks, it is probable that some of the details may require modification, it will be found to possess a general harmony with all known facts, while it suggests to the medical practitioner resources, the advantages of which continued experience is daily rendering more evident.

Elements of Human Anatomy; General, Descriptive, and Practical. By T. G. RICHARDSON, M. D., Demonstrator of Anatomy in the Medical Department of the University at Louisville, and one of the Attending Surgeons to the Louisville Marine Hospital. Philada. Lippincott, Grambo, & Co. 1854.

It gives us much pleasure to speak favorably of Dr. Richardson's work. He has united general, descriptive and practical

anatomy in the same volume, by which arrangement, the learner just entered upon the study, will be saved the expenditure of much time and labor. The descriptions and dissections are clearly and concisely written. We have been especially pleased with his account of inguinal hernia, which cannot fail, we think, to give the student correct anatomical views of that important affection.

The publishers, Messrs. Lippincott, Grambo & Co., deserve credit for the excellent manner in which the book is printed. The wood-cuts are, generally, well executed.

Ranking's Half-Yearly Abstract, No. 18. Lindsay & Blakiston, Publishers, Philadelphia.

Braithwaite's Retrospect of Medicine. Vol. 28. London.

The deserved popularity of the above works renders any further notice of them unnecessary, than that they are fully equal, as valuable summaries, to their predecessors.

Homœopathy Fairly Represented. A Reply to Professor Simpson's "Homœopathy Misrepresented." By WM. HENDERSON, M.D., Professor of General Pathology in the University of Edinburgh. Lindsay & Blakiston, Philadelphia.

The above, noticed in connection with Dr. Simpson's work, in our last number, has been received from the publishers.

A Treatise on Venereal Diseases. By A. VIDAL (DE CASSIS), Surgeon of the Venereal Hospital of Paris, &c. *Translated and Edited by* GEO. C. BLACKMAN, M.D., Fellow of the Royal Medical and Chirurgical Society of London. New York. Samuel S. & W. Wood, 1854.

We regret that our limits have not permitted us to notice M. Vidal's admirable treatise in the present number. We shall merely state that it is rich in practical details, which should, for that reason alone, make it acceptable to the student and practitioner in venereal affections. It will be reviewed in our next number.

THE MEDICAL EXAMINER.

PHILADELPHIA, APRIL, 1854.

MEDICAL NEWS.

Dr. JOSEPH PANCOAST, Professor of Anatomy in the Jefferson College, has been elected Surgeon to the Pennsylvania Hospital, in the place of George Fox, M. D., resigned.

MEETING OF THE NEW YORK STATE MEDICAL SOCIETY.—The Society convened in its annual meeting, at the City Hall, in Albany, on the 7th of February, and continued in session till the afternoon of the 9th.

The Board of Censors appointed last year, at its previous meeting, to attend the examinations of the medical colleges in the city of New York, reported that the College of Physicians and Surgeons, in Crosby street, and the New York Medical College, in Fourteenth street, had invited and admitted them to their examinations of candidates for the degree of Doctor of Medicine. They reported that all the graduates of those schools were worthy of the degree.

From the University of the city of New York, in Thirteenth street, they reported that they had been refused the privilege or right of attending its examinations; that an answer from the faculty was deferred till a month after the time of graduation; and that, finally, a letter was received from professor Draper, assigning reasons for declining the supervision of the State Society. The letter was read and embodied in the report.

On the third day the matter was called up. A very general expression of the opinions of members was given. The course of the college was considered derogatory to the society, and subversive of all restraints in the conferring of degrees. A resolution was unanimously passed, censuring the college in strong terms, as being desirous of concealing its operations from the inspection of an honorable profession.

The Board of Censors were again appointed, with instructions to hold no intercourse with the University School unless specially invited so to do.—*Buffalo Med. Journal.*

A "Medical College of Virginia," governed by a board of nineteen visitors, appointed from different portions of the State, has been incorporated by the General Assembly of Virginia. The corporation is endowed with the property heretofore used for the purposes of the Medical School in Richmond, and with full powers over the faculty to be appointed hereafter.

The Boston Medical and Surgical Journal states that a Mrs. Frazer, of Slack Co., Ohio, has had six children within a single year, having had three at a birth twice.

The N. O. Medical and Surgical Journal, owned and edited by the late lamented Dr. Hester, has been sold since his death. It cannot fail, in the hands of its present able editor, Dr. Bennett Dowler, to give general satisfaction.

We have received the first number of the N. O. Medical News and Hospital Gazette, a semi-monthly Journal, edited by Drs. Samuel Choppin, C. Beard, R. Schlater and P. C. Boyer. We extract the following from their salutatory: "The connexion which our editorial corps has with the hospitals of New Orleans, affords the opportunity of presenting a regular report of interesting matter; and the assurances of assistance from other attending surgeons and physicians, warrant us in making the assertion that our pages will be found a mirror of hospital practice." We heartily wish them success in their laudable undertaking.

We have been much pleased with the perusal of "Doctors' Commons." The formation of libraries, pathological museums and cabinets of natural history, by State, County, and all local medical societies, is forcibly advocated by its author, Dr. S. W. Butler. If such a plan were generally adopted in every town and village, it would, independently of the kindly feelings engendered, tend greatly to the diffusion of knowledge and scientific inquiry among its members.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—The next meeting of the Association opens at Washington on Wednesday, the 26th of April, and not on the 30th, as stated in the May number of the American Journal of Science.—*Eds. Am. Jour. Sci.*

OBITUARY.—Dr. George C. Shattuck, Sen., of Boston, aged 71

years. To the poor, the suffering and the struggling, Dr. S. was a benefactor and a friend. He was a man of great wealth, which, however, he seemed to prize only as he found occasion to use it nobly; of a heart full of kindness, and "a hand open as day for melting charity;" the best of neighbors, the best of citizens, the best of patriots; a steadfast lover and cherisher of all gentle and liberal and honorable things. It has never been our lot to know any one to whom could be more justly assigned the praise—

"Of that best portion of a good man's life,
His little, nameless, unremembered acts
Of kindness and of love."

New York Churchman.

At Columbus, on the 16th of January, Dr. Howard, in the 45th year of his age. Dr. H. was Professor of Surgery in Starling Medical College at the time of his death. As a teacher and operator he was deservedly celebrated.

We recorded in our February number the death of Dr. A. A. Gitenau, of Laurens County, Georgia. It should have been Dr. A. A. Giltenan.

RECORD OF MEDICAL SCIENCE.

On the Use of Common Salt in the Treatment of Intermittent Fever.
By JOSEPH C. HUTCHISON, M. D., of Brooklyn, N. Y.

The extensive demand for sulphate of quinia, and its consequent high price, and, indeed, the frequent impossibility of obtaining it, in the portion of Missouri where I have recently practised, induced me to subject to the test of experiment various remedies which have from time to time been proposed, as substitutes for that invaluable medicinal agent, in the treatment of intermittent fever.

Among others, a succedaneum, quite recently presented to the notice of the profession, by Drs. Scelle Montdezert and Piorry (viz., common salt,) has claimed our attention, and forms the subject of the present paper. For a history of its use by these gentlemen, their mode of administration, &c., the reader is referred to a paper, by W. P. Lattimore, M. D., in the *American Journal of Medical Sciences* for July, 1852. Professor Herrick, of Rush Med. College, has also reported two cases, in the *N. W. Med. and Surgical Journal*, for Sept., 1851, which go to corroborate the success obtained by MM. Montdezert and Piorry.

Although the credit of introducing chloride of sodium, as a remedy for intermittent fever, to the notice of the profession generally, is un-

doubtedly due to the French physicians above mentioned, it appears that it was used for this purpose prior to that time. Soon after I had commenced experimenting with it, I mentioned the subject to a neighboring physician (a gentleman of undoubted veracity and professional skill), who informed me, that some years previously he had heard of its being used as a domestic remedy for fever and ague by the people in that neighborhood. I also learned, from a highly respectable lady, that her husband's grandfather, many years before, was in the habit of curing fever and ague among his negroes, by giving copious draughts of salt water from a large salt spring on his farm.

Notwithstanding the favorable reports which have been made, the remedy has been but little used in this country, because its antiperiodic influence was doubted. And it has been thought not inappropriate again to introduce the subject to the notice of the profession, with the hope that it may receive more general attention. The experiments were commenced for the purpose of determining, with some degree of accuracy, a knowledge of its value in intermittent fever, by exhibiting it in a large number of cases. And no better field could have been selected for the experiment, not even the far-famed Pontine marshes, whether we consider the very general prevalence of the disease, or the protean and obstinate forms it here sometimes assumes. In consequence, however, of my removal to this city, it was prescribed in but twenty-two cases, occurring in twenty individuals, a summary of which is now presented as they were recorded; there has, consequently, been no attempt at a selection of the cases. I was enabled to ascertain the permanency of the cures in but three patients, and the condition of the spleen in but one. It would have been very desirable to have observed its effect on the spleen, which, according to Piorry, is diminished in volume with marvellous celerity. These unavoidable imperfections in the history of the cases arise from the fact, that most of the patients resided at a considerable distance from my office, and were prescribed for without having been examined; and, indeed, from the very general prevalence of the disease, most persons have become so familiar with the use of quinia (which is usually kept in the house, and prescribed as a matter of economy and convenience by the head of the family, when necessary), that a resort to the physician in ordinary cases is rarely thought of. But I think we may safely surmise, that hypertrophy of the spleen existed in every case, excepting, perhaps, in cases 13 and 16, which were recent cases, occurring in very young subjects; because, in malarious districts, this pathological condition exists almost universally, and can be readily detected by careful percussion, even in persons who have never had what are commonly termed miasmatic diseases (intermittent and remittent bilious fevers), and who enjoy apparent good health. It appears to be the direct effect of the malarial poison, and it is a fact well known to practitioners in miasmatic districts, that in all diseases occurring there, even in those not strictly of malarial origin, the morbid effects of this poison are more or less obvious, requiring for their treatment specific remedies, in addition to their ordinary therapeia.

[Twenty-two cases are then detailed. We shall omit these, however, as the author's comments upon them fully exhibit the type, duration and permanency of the cure of the disease; the dose required as well as the mode of administration, &c.]

RECAPITULATION.—*Age*.—9 were under ten years of age, 6 between twelve and twenty, 4 between twenty and forty, and 1 at forty.

Sex.—7 were males, 12 females, and 1, sex not known.

Race.—16 were white, and 4 black.

Proportion of Cases cured, benefited, &c.—Of the 22 cases reported, in 12, or 54.5 per cent., viz., Nos. 1, 3, 6, 7, 8, 12, 14, 16, 17, 19, 20, 21, the paroxysms were immediately suspended. Nos. 12, 20, 21, occurred in the same patient.

In 3 of the cases, or 13.6 per cent., viz., 5, 9, 18, one paroxysm only occurred after the remedy was commenced. It was completely successful, therefore, in 15 cases, 68.2 per cent. In cases 2, 11, 22, the paroxysms were postponed or moderated. No. 11, it will be remembered, vomited after each dose, so that the salt was not retained in sufficient quantity to have produced any marked antiperiodic effect. For No. 2, 4, 13, and 15, the remedy was not prescribed a second time, the patients objecting; an increased dose might have arrested the disease. Case 4 did not take all that was prescribed. In one case only (No. 10), after fair trial, was there no obvious good effect from the remedy.

Permanency of the Cures.—In three of the patients only, for reasons which have been elsewhere stated, was I enabled to ascertain with any degree of accuracy the permanency of the cures. Cases 12, 20, 21, which occurred in the same patient, had longer intervals of immunity from the disease each time when checked by the salt, than when quinia had effected the same purpose; and when last heard from, five months had elapsed without a return of the malady. It was said of No. 3, that the disorder did not return so soon as it had previously done when checked by quinia; and of No. 6, it will be remembered, that the patient had not relapsed twelve months after the paroxysms had been checked by nine drachms of the salt, although they had previously returned quite frequently after the use of quinia. So far as the evidence goes, therefore, (which, however, is too limited for a general conclusion,) it indicates the superiority of the chloride of sodium over the usual remedies in the permanency of the cures effected by it. And here we should not lose sight of the favorable influence that *may* have been exerted by the quinia before the salt was prescribed.

The difficulty of effecting positive cures of intermittent fever by any remedy or course of treatment, however rigidly pursued, is very great, and sometimes impossible, even though prophylactics be continually used, as long as the individual remains exposed to the cause which developed it. The writer can here speak emphatically, because he has, on two different occasions, been compelled to "fly his country" in order to get rid of this harassing pest. In a number of cases, and among others now distinctly remembered are No. 6 and 7 detailed above, the paroxysms would recur every two or three weeks, notwithstanding quinia with

Vallet's mass and other remedies to relieve the disordered viscera, including counter-irritation over them, were diligently plied.

Duration of the Disease, and general Health of the Patients.—In a large proportion of the patients the disease had existed a very long time. Of most of them it is noted, that they had been its victims from six to twelve months. By this it is not to be understood that the disorder then commenced *de novo*, but that it had recurred more regularly and with shorter intervals during that period than previously; for many of them had been victims for a much longer time, and indeed a few could scarcely remember any period of their lives when they were not from time to time subject to the disease. In four cases (11, 13, 16, 17), the patients had never had the disorder before; and in most of them (all but the very recent ones), there was of course more or less impairment of the general health, with visceral obstructions.

Modus Operandi.—We have seen that chloride of sodium *does* cure intermittent fever, and now the interesting question arises, What is its *modus operandi*? Upon this subject there is a variety of sentiment. It is the opinion of M. Scelle Montdezert "that paroxysmal fevers arise from the presence of fibrin in the venous blood," and that the salts of quinia, and also *chloride of sodium*, "owe their efficacy as antiperiodics to the fact that they dissolve the fibrin abnormally present, thus restoring the venous blood to its normal conditions." (See Dr. Lattimore's paper.) I suppose he means *excess* of fibrin, or of colorless corpuscles (which, as Mr. Paget remarks, cannot, by any mode of analysis yet invented, be separated from the fibrin of mammalian blood),* or of both, constituting the disease which Prof. Bennet, of Edinburgh, calls, very significantly, *leucocythemia*, and which he has recently described as occurring in cachectic states of the system, attended with organic disease of the lymphatic glandular system, and more particularly of the spleen, which he includes in that class. Not having seen the memoir of Montdezert on this subject, which was presented to the French Academy of Medicine, I am unable to say how his conclusions were arrived at; whether they are the result of a carefully conducted analysis of the blood, before and after using the remedy, or merely a conjecture. It would be necessary, in order that his views be generally adopted, that they should be based on very satisfactory evidence. The enlightened state of medical science at the present day, and the rigorous exactness to which it is aspiring, demands that all its facts should rest on the most indubitable evidence of their truth.

It is believed by M. Piorry (who was one of the committee appointed by the Academy to report upon the memoir of M. Scelle Montdezert), that enlargement of the spleen is the cause of all paroxysmal fevers, and that chloride of sodium cures intermittent fever, like the sulphate of quinia, by acting on the spleen and diminishing its volume, and this sometimes in less than a minute. We are prepared to admit, that the spleen, when of abnormal size, *tends* to keep up the disease when once contracted, and that it is diminished in volume by sulphate of quinia

* Kirkes and Paget's Manual of Physiology.

and chloride of sodium (but not *pari passu*) with the fever; for we feel quite sure that the fever is often cured, whilst the spleen remains moderately enlarged. And the fact which he announces, that "whenever the spleen has a greater length (measuring in a line from the middle of the axilla to the anterior superior spinous process of the ilium) than from 31 to 33 lines, intermittent fever exists," is certainly *not* true in the malarious districts of this country, if it is otherwise in the field of Piorry's observation. If this were a fact, there are very few of the denizens of *our* miasmatic regions who would not be doomed victims of the disease; because, as has been already stated, enlargement of the spleen (often to the extent of 31 or 33 lines in its longitudinal diameter) exists almost universally in such localities, in persons who have for some time resided there, even though they may never have had intermittent fever, and *a fortiori* in those who *have* had the disease, but have for a long time enjoyed an absolute immunity from it.

A theory of its mode of acting, which, it occurs to the writer, is more consistent with reason and established truth, is, that chloride of sodium (being an antidote to the poison which produces intermittent fever, in certain doses) enters the circulation by means of absorption, and neutralizes the miasmatic effluvia which probably operate on the system through this channel; or, in other words, that it develops a condition of the system which is inconsistent with the existence of malarial disease.

We know that bark is an antidote to the miasmatic poison, because, in most instances, its constant use will keep off such diseases from individuals who have been subject to them, and that they return when the remedy is omitted, if the individual continues exposed to the cause which produces them. We can have no better illustration than this of the sequence of cause and effect. Our experience with chloride of sodium in paroxysmal fevers has not yet been sufficient to determine accurately its value, in preventing a recurrence of the attacks when constantly used; but there is every reason to believe it will prove not much inferior to the preparations of bark, and for the same reason.

Common salt may also act beneficially in intermittent fever by increasing the quantity of red globules in the blood, thereby removing the anemia which is one of the most constant concomitants of the disease. According to the experiments of M. Plouviex, made upon himself at intervals during twenty-five months, a saline regimen has the effect of *increasing the strength and weight of the body*. He began with a teaspoonful daily, which he increased to a tablespoonful, continuing to take this dose on several occasions, for a period of three or four months. The regimen appeared to produce *plethora*. The blood, analyzed while under the full effects of the salt, was found to contain more of the *globules* and salts, but less of the albumen and water.—*United States Dispensatory*.

Dose and Mode of Administration.—The quantity given varied from eight to twelve drachms during the apyrexia. At first, eight drachms were given, but the amount was subsequently increased to nine, ten, and even twelve drachms in one instance, with obvious benefit. Children required somewhat larger proportional doses than adults.

Mucilage of elm was selected as the vehicle, on account of its con-

venience, and because it sufficiently disguised the remedy, which was deemed a matter of importance; for it would have lost much of its efficacy, or have been repudiated altogether, had the patients known they were taking simply common salt; as it is well known to physicians that the influence of the mind upon this disease is very considerable. The following was the formula used:

R. Chloridi sodii ℥iij.
 Ulmi pulv. ℥iij.
 Aq. bullientis f℥viii.

Infuse two hours and strain. This forms a saturated solution. Dose, a tablespoonful every two, three, or four hours, so that five or six doses may be taken during the apyrexia. It was not deemed necessary to precede its employment by evacuants, because the patients had recently used such remedies during their former attacks; and moreover, I preferred to use the salt alone, because its real value could thus be better determined. When it is necessary to precede the use of the salt as an antiperiodic, by emetics or cathartics, perhaps there is nothing better for the purpose, in ordinary cases, than the same remedy administered in emetic doses, which will usually produce also moderate catharsis.

Disturbing Effects.—In most of the cases the remedy was well tolerated by the stomach, nausea or vomiting having occurred in but four (3, 11, 14, 15). Four cases also (2, 3, 15, 17,) had moderate alvine evacuations, unattended with pain. There was considerable thirst in every case; no other unpleasant effects. When given in the above manner (dissolving it in as small a quantity of water as is possible), it is less likely to disturb the stomach, than the same or even a less amount would in a larger proportion of the solvent. The taste was objected to by some, whilst others disliked it much less than quinia.

Conclusions.—From our experience of the antiperiodic virtues of chloride of sodium as detailed above, we think the following conclusions may be legitimately deduced:

I. Although inferior to cinchona and its preparations, it yet forms a *very good substitute* for them in intermittent fever, having failed, as we have elsewhere seen, to produce a speedy suspension of the paroxysms in 31·8 per cent. of the cases only: in a majority of cases therefore it may be substituted for quinia.

II. It may be used instead of, and indeed *preferably* to quinia, first, in cases not unfrequently met with, where the latter remedy is forbidden by the very unpleasant nervous and cerebral symptoms it produced (delirium, tinnitus aurium, cephalalgia, faintness, &c.), an example of which I have recently seen in the New York Hospital, when sulph. copper was substituted. Secondly, where quinia, from frequent repetition, has lost its effect in ague. Thirdly, it is commended on the *score of economy*, which is a consideration of importance to the poor especially, who are now in a measure debarred from the use of quinia by its high price. And fourthly, it is always at hand, whilst quinia sometimes cannot be obtained.

III. It has been found to be *more energetic* in curing ague than any

of the vegetable or mineral tonics commonly used for that purpose, excepting bark, and should therefore be preferred to arsenic, which has been ranked by M. Andral, Prof. Wood, and indeed most other authorities, next in value to quinia. And moreover, I think arsenic should never be used until after quinia and *common salt* have failed to do good, on account of its unpleasant and sometimes disastrous consequences to the general system and stomach, and the increased facilities it affords for using the remedy as a toxicological agent.—*New York Journal of Medicine.*

On the Diminution and Disappearance of Uterine Tumors. By SAMUEL ASHWELL, M. D., late Obstetric Physician and Lecturer at Guy's Hospital.

There is something so singular and unexpected in the *almost spontaneous* diminution and disappearance of large and hard tumors of the uterus, without coincident and appreciable breaking-down of their structure, that I think it may not be without advantage to bring together some of these unusual and striking cases, accompanying them with a few explanatory and practical observations.

Formerly, more than at present, the recognition of a large tumor in the pelvic region excited the alarm, not only of the patient, but of her professional attendant; and it is only from more accurate and extended pathological knowledge as to the indolent and innocuous character of some of these growths that we now regard them with less anxiety.

The exact pathology, however, of certain of these uterine tumors is still a vexed question—one certainly admitting of further elucidation—whether, for instance, a *fibrous* tumor is ever capable of being absorbed, is yet a matter of dispute; for while Lisfranc regards the absorption of any tumor as satisfactory proof that it is not fibrous, there are, as I shall show, distinguished pathologists, both in this country and abroad, who believe they have witnessed the melting down and disappearance of both fibrous and cancerous growths. It is therefore right, where we can only form a doubtful diagnosis as to the nature of any uterine tumor, to treat it as though it were curable; for if malignant, judicious treatment can do no harm; whereas, if it be of unspecific and benign character, the treatment will generally prove curative. I state, then, at once, that the pathology of these large and hard tumors, to the very occasional diminution and disappearance of which, *without* coincident breaking-down and discharge of their structure, I am now soliciting attention, is not the object of this paper, my aim being, to show that tumors of the uterus so large as to attract attention by their great size, so hard as to resemble, in some examples, the hardness of true carcinoma, and giving rise to alarming hæmorrhages and frequently-recurring pain, do very occasionally, when all treatment has been abandoned, present the following results:—

First. A slow but progressive diminution of bulk and of hardness, unaccompanied by any appreciable breaking-down of their structure.

Second. A lessening at least, and sometimes a cessation, of the bleedings, profuse menstruation and discharges, and, where it has existed, of the pain.

Third. A gathering of flesh, and a restoration of the general health.

Prior to the detail of the appended cases, it is necessary to make the following observations.

That, in all of them, treatment (especially by iodine, in tincture and ointment) had been long pursued; that nutritions, unstimulating diet, mild malt liquor, and light wines, were allowed; that resort was only occasionally had to *leeching* near, not over, the seat of pain; and still more rarely to cupping on the loins; that *purgatives* and *aperients* were exhibited only when it was evident that the bowels required to be unloaded; that *setons* over the site of the tumor produced, in several instances, marked benefit; and further, that in all the numerous cases which have fallen under my notice, the *recumbent posture*, and, as far as possible, the avoidance of sexual intercourse, but particularly the former, have been *strictly* enjoined.

Large hard tumor of the uterus, with excessive hæmorrhages, and slow but complete diminution of bulk.

CASE 1.—April 22d, 1843.—Miss —, aged forty-eight, resides near Hounslow, and has formerly been under the care of Dr. Blundell and her own medical attendant. First perceived a tumor about the size of a small melon three years ago. It was then low down in the hypogastric region. Her health did not then suffer, but two years since menstruation became profuse, and there was also much uterine bleeding. Iodine was used, and various means were employed to arrest the hæmorrhages.

Now the tumor is as large as a moderate sized adult head, lobulated, and in several of its more prominent portions of *extreme* hardness. It reaches nearly as high as the umbilicus, and protrudes the abdominal integuments, giving to the patient the appearance of a pregnancy of the fifth or sixth month. Has frequent cutting pains in and about the tumor, and is greatly inconvenienced by the weight, pressure, and tension. The growth is not tender to the touch, not even in those portions where there is constant pain. Walking is difficult. Internally the vagina is capacious, and there is much mucous discharge. The os uteri is patulous; and its lips, together with the cervix, are soft and swollen, but without any spots of induration. The most alarming symptom is the hæmorrhage; which, without any assignable cause, is sometimes so excessive as to induce long-continued faintness. Cold applications are often employed for several days before the bleedings are arrested. She has lost flesh, and is very weak; her countenance is anxious and very pallid; pulse 110; bowels constipated; appetite bad; she is restless and irritable, and often extremely depressed. Tincture of iodine, six minims, three times a day, in a little sugared water, and the iodine ointment every night over the tumor, were prescribed.

For several years I watched this patient, she being often in extreme danger from the bleedings. The use of the iodine was frequently sus-

pended, and various remedies, rendered necessary by exhaustion, were employed in its stead. In 1847, Miss —, being then fifty-two years of age, menstruation ceased, and at that period the hæmorrhages became far less frequent, and the tumor was manifestly less.

Nov. 22d, 1849.—Miss —, called upon me, saying that the bleedings had returned very rarely, and never to great extent. She had regained her flesh, and was in very tolerable health. The tumor was not larger than an orange. By examination “per vaginam,” I could discover scarcely any hardness of the cervix.

May 9th, 1851.—I find the following entry in my case-book :—“To-day Miss — calls to consult me about some slight derangement of her general health. I can, externally, scarcely make out any tumor, and as to the os and cervix, there is scarcely any appreciable duration.”

March 22d, 1852.—Again Miss — comes to me on account of slight indisposition. The tumor cannot be felt externally, and it is only by pressing the fingers deep down into the pelvis, behind the pubis, that it is at all perceptible. There has not been any vaginal discharge for several years. I may, in concluding the history of this case, remark, that I have very recently seen Miss —, and, but for indigestion, she is in good health. There is just as much of the tumor to be felt as at the last examination.

[We omit the other cases related.]

Remarks.—I could narrate several more examples of nearly entire disappearance of these large tumors, and a still greater number where after having diminished very considerably in bulk, they have, for many years, remained entirely stationary. In both classes of cases the attendant symptoms have passed away, and there has been little or no interference with the comfort of life. All the cases which have fallen under my care prove the value, where any doubt exists, of the precise character of uterine growths, of cautious and long-protracted treatment. The continuance of pain, hæmorrhage, and emaciation, with a stationary condition of the tumor, although unfavorable, ought not to arrest the treatment; while, on the contrary, any diminution of these painful accompaniments should be regarded as sufficiently auspicious to encourage a further continuance of remedies. In every similar case the means recommended may not be attended with like success; still, in by far the greater number, I am strongly of opinion their employment will be decidedly efficacious, if not entirely curative. We are not expected to determine what may be the final issue of many uterine tumors, nor to deny the possibility of eventual malignant development, nor to promise a cure; but, judging from the narrated cases, and many others which I am sure have occurred to different practitioners, I may truthfully declare, that in many such thus treated, entire disappearance, or, at least, an arrest of further growth will be the result.—*London Lancet.*

Clysters of Pure Water.—FALCK has made a series of experiments on the action of clysters of pure water, from which he obtained the following important practical results :

1st. Water clysters, to the amount of 330 grmms., have at any temperature between 0° and 40° R. (32° and 122° F.) a sanguipetal action, that is to say, they produce no evacuation, but the water becomes absorbed and enters the blood. If the water is of a temperature from 30° to 40° R., (100° to 122° F.) they excite a feeling of warmth, and if from 0° to 20° R. (32° to 77° F.) a feeling of cold, and according to the temperature act either as an astringent or a laxative.

2d. Water clysters, in which the amount of water introduced into the bowels is greater, say 660 grmms., have only within the temperature of 10° to 35° R., (55° to 110° F.) a sanguipetal action; at a higher or lower temperature they act as a purgative. According to their temperature they are either laxative or astringent. From these results, the following rules for their practical application are drawn:

1st. If water clysters are given with the intention of being absorbed, the volume must not be too great, and the temperature must approach as near as possible to that of the body, at best a temperature of 26° R. (90° F.)

2d. If the object be to produce evacuations, a large quantity of water must be used, and that temperature selected, according as a laxative or astringent is desired, either under 10° R. (55° F.) or above 35° F.)
—Translated from Vierordt's *Archiv. f. physiol.*

Treatment of Aneurism by Compression.—In the "Medical Times and Gazette" of October 29th, and November 5th and 12th, a very interesting series of cases of external aneurism is given, which have been recently subjected to surgical treatment in the metropolitan and some of the provincial hospitals. These cases amount to twenty-five in number, and are nearly all well and accurately reported. The details of the cases furnish much information, which is very desirable for a proper estimation of the comparative value of the modes of treatment by ligature and by compression, as well as in determining the cases in which the one or the other mode of treatment is preferable.

The list comprises 23 cases of aneurism of spontaneous and 2 of traumatic origin. The seats of the aneurism of spontaneous origin were as follows:—Popliteal artery, 19; femoral, 3; radial, 1. The traumatic aneurisms were situated in the femoral and in the anterior tibial arteries. In one case a popliteal aneurism existed in each limb; and in one, double femoral aneurism existed in one artery. One case only (popliteal) occurred in the female sex.

Of these 25 cases, 23 were submitted to treatment by compression, which succeeded in curing the disease in 14 and failed in 9. Ligature of the artery without previous compression, was followed only in one case, and without success. In the cases in which compression proved successful, the artery was compressed during periods varying from three days to upwards of five months. The duration of the compression till the tumor was solidified in the different cases was as follows:—3 days, one case; 4 days, one; 8 days, three; 11 days, one; 15 days, one; 21 days, one; a month, one; $6\frac{1}{2}$ weeks, one; 10 weeks, two; 15 weeks,

one; and 23 weeks, one. In the case of double popliteal aneurism the cures were effected respectively after 4 and 8 days' compression.

The treatment by compression was abandoned in six cases of aneurism of the popliteal, in two of the femoral, and in one of the radial artery. The causes which led to the abandonment of the compression were nearly the same in all these cases, pain and constitutional disturbance, with cedematous or erysipelatous swelling of the limb, and increasing size of the tumor. The result of the ligature in these nine cases was that six were cured, one (a case attended by unusual peculiarities) remained *in statu quo*, and two died, one from subsequent suppuration of the sac and of the knee-joint, the other from gangrene, from the femoral vein having been wounded in the operation.

In one of the cases of traumatic aneurism (that of the anterior tibial artery) compression was successful in curing the disease; in the other, (that of the femoral artery, alluded to as a case of a peculiar kind) neither compression nor the ligature effected any change in the condition of the tumor.

This short abstract proves, in the first place, the very general confidence which now appears to be placed in the treatment by compression, or at least the general anxiety on the part of surgeons to test its merits. Very great attention and perseverance appear to have been bestowed on the treatment in nearly every case. The apparatus employed in Dublin (Carte's) was that almost invariably applied, alternated in some cases with the employment of manual pressure, or of a weight placed on the artery. The pressure was variously borne, some of the patients complaining little of its irksomeness, others passing sleepless days and nights and insisting on occasional intervals of relief from all pressure. The treatment by compression was not attended by any fatal result, nor, so far as we can perceive, by any decidedly mischievous consequence. The number of cases in which it was found necessary to abandon compression and to resort to the use of ligature is considerable (about 40 per cent.); but the proportion of cases in which the cure was effected after a short period of compression is greater, we think, than in any series of cases hitherto recorded,—and it is worthy of remark that the tumor was of comparatively small size in all the cases in which a few days of compression sufficed for the cure.

Death followed the application of the ligature in two cases of the nine in which the vessel was tied. In one of these suppuration of the sac and of the knee-joint led to the fatal result. The case does not appear to tell against the use of the ligature; for the operation was performed after the artery had been subjected to pressure for a fortnight, during which time the tumor had increased in size, the thigh had become cedematous and the patient had suffered much pain. The advocates of the use of the ligature might tell us, and with some justice, that the ligature of the artery in this case at first would probably have saved the patient, and that the result was due to the unfavorable state of the limb produced by the compression, and to the progress which the tumor had been allowed to make during the period of its employment. The second fatal result was attributable to the vein being wounded in the operation,

and we think that the possible occurrence of this accident (which has many times happened) forms to a certain extent an element in the question of preference of the one or other method.

The perusal of these cases certainly tends to increase our confidence in the treatment by compression, as a means of cure which should, in the majority of cases, supersede the use of the ligature in the treatment of popliteal and femoral aneurism. Their history, too, confirms our opinion as to the class of cases in which compression is especially applicable, viz., those where the tumor is small, where it contains a considerable quantity of solid matter, and when it is not making rapid increase in size. It is true that compression has effected a cure in many cases in which these favorable conditions were not present; but we think that the general result of such cases does not present sufficiently favorable evidence to establish the superiority of the treatment by compression over that by ligature, except in the class of cases we have mentioned.—*Edinburgh Medical and Surgical Journal*.

Two Cases of Labour terminated by the Forceps.—By FRANCIS H. RAMSBOTHAM, M.D. F. R. C. P., Obstetric Physician to the London Hospital, etc. etc.

I have deemed the two following forcep-cases, that have recently occurred in my practice, worthy of publication, because of the contrast which they supply; the one woman who recovered perfectly well, having been in labor for six days with her first child, and the membranes having been ruptured seventy-five hours before delivery was effected; while the other, who died, had borne nine children before, and in her case the liquor amnii had been evacuated only five hours. I may add, that in both, the head was extracted with less than the ordinary degree of difficulty.

Case 1.—Forceps: Fatal.—At 9 A. M., on Thursday, Nov. 3, 1853, I was sent for by Mr. Houghton to Mrs. W., Nelson-square, Blackfriars-road, a very stout woman, of leuco-phlegmatic temperament, weak powers, and unhealthy constitution, in labor of her tenth child. She had been taken ill during the preceding evening; and the membranes had broken at four in the morning. Since that time, however, the uterus had been acting with great power, and the attendant pain had been unusually severe. Although her husband had driven rapidly to my house, and I obeyed the summons immediately, her first exclamation when I entered the room, was, "How long you have been coming!" for she had been promised delivery as soon as I should arrive. I found the os uteri perfectly dilated, the vagina very lax, the bladder empty, a great part of the head in the pelvic cavity, the base being still above the brim, and the face turned towards the left groin. The cause of delay was evidently a contraction in the conjugate diameter of the brim; but as I judged the space to be at least three inches and a quarter, I expected to meet with little difficulty in extraction by the long forceps. The uterus was con-

tracting very strongly, and almost incessantly; the abdomen was very pendulous, and the whole of the uterine tumour so tender, that she would not bear the least pressure upon it. The pulse was very rapid, the countenance suffused and much distressed, and there was very frequent, indeed almost constant vomiting, everything she took being instantly rejected: there was, however, no black or coffee-ground-like matter. I immediately applied the long forceps most easily, one blade being passed up to the right eye-brow, and the other behind the left ear. With two efforts I brought the head into the pelvis, and, owing to the distensibility of the soft parts, extraction was very easily accomplished. The shoulders, however, gave me considerable trouble, and I was obliged to use a blunt hook for their liberation. The child was dead; it weighed twelve pounds and a half. The placenta passed naturally, without hæmorrhage, in about ten minutes. I was in hopes that both the vomiting and the uterine tenderness would cease on delivery; but in this I was disappointed; for in neither respect did any material amendment take place. On the next day, however, she was rather better, and I began to entertain some hopes of her recovery. In consequence of being obliged to go some distance into the country on that evening, (Saturday,) I did not see her again till early on Tuesday morning. She was then in a state of most urgent danger, all the symptoms being aggravated; the vomiting was almost constant, and the egesta of a dark color; the abdomen was also tympanitic. On Wednesday she was even worse, and she died at ten o'clock on Thursday morning. No *post mortem* inspection was allowed, but I have little doubt that the uterus had injured itself by the violence of its action after the membranes broke. There were none of the local indications of laceration present, indeed; but the peritoneal covering might have split, as it sometimes, though rarely, does; or the mucous membrane, and a portion of the substance might have given way without any communication being made with the abdominal cavity, under either of which circumstances, of course, no recession would take place of any part of the child.

This is a kind of case in which, no doubt chloroform would have been useful, and I should have administered it myself, had I not been anxious to effect delivery without delay, and certain that I could do so with great facility.

Case 2.—Forceps: Recovery.—On Saturday, Dec. 30, 1853, at 10 A. M., Mr. York called me to Mrs. S., in the Edgeware-road, aged 41, in labor of her first child. Mr. York had been sent for to her on the Sunday before. She was then suffering from periodical pains, like those of labor, and they had continued, without intermission, more or less severely ever since. The membranes broke spontaneously on Wednesday morning, since which time the uterus had been acting regularly, as well as more powerfully than before; the pains, however, had never been of an expulsive character till lately. I found the os uteri almost entirely dilated, but to be felt all round, soft, thin, and distensible. The head was not fully in the pelvis; it was detained, apparently, by a want of space above the brim, in the conjugate diameter, owing to the last, or

the two lowest lumbar vertebræ projecting too far forwards. The promontory of the sacrum was quite out of the reach of the finger, and yet there evidently existed some mechanical impediment, which must have been situated higher than the brim, to the head's descent. The head itself was perfectly free and unimpacted, and the face was looking towards the right groin. There was no distress in the system; the pulse was under 100; the tongue was clean, the mouth moist, the countenance placid, the urine passed freely, and the patient took a sufficiency of nourishment, and had all along obtained a good share of rest at short intervals. There was no tenderness of the uterine tumour externally, nor of the vagina within. The uterus was acting expulsively every four or five minutes, and the child's head was bearing upon the os uteri with each return of pain. I considered that it would have cleared the orifice long before the time I saw her, had it not been for the resistance noticed above.

Both the patient and her friends were very desirous that I should terminate the labor at once. Nor is this to be wondered at, considering the length of time that it had already lasted; but as delivery could only have been effected at that time by sacrificing the child, and as such a proceeding could not possibly be entertained, Mr. York assisted me in persuading them of the propriety of postponing any instrumental means for the present. I saw her again at 5.15. Both she and her friends had then become very importunate. The head was much elongated; it was somewhat distending the perinæum, and the vertex was being partially protruded with each contractile effort, though it had not completed its turn. The pains were decidedly expulsive, but still not violent. The external parts were rigid, and giving way slowly; there was no urine in the bladder; the pulse was rather more frequent, and the lady was altogether more anxious about herself than in the morning; still there were no very urgent symptoms. Taking into account, however, the length of time that had elapsed since the membranes broke, the want of progress that was then being made, (although the head had descended considerably since my first visit,) together with her own and her friends' urgent solicitations, and the ease with which delivery could be effected, we thought it better for the child's sake, as well as her own, not to allow the labor to proceed any longer. I therefore introduced the blades of the forceps upon the head laterally as regarded the pelvis, not being able to feel an ear, and extracted it in two or three minutes. It escaped quickly as soon as the turn was completely made; one limb of the instrument was adapted over the left brow, the point reaching to the orbital ridge, and the other behind the right ear. The child was alive, and its face quite livid; it soon, however, recovered its natural color. The trunk passed easily. The umbilical cord was more than four feet in length, but was not twisted round any part of the child's body. The placenta was expelled in fifteen minutes, without hæmorrhage. The next day she was as well as if she had gone through the most natural labor; she has progressed satisfactorily, and is able to nurse her infant.

The foregoing may be taken as a strongly-marked example of two dif-

ferent types of cases, though terminated by the same instrument with ease; the one for the absence of constitutional distress in a labor that had lasted six days; the other, for the supervention of highly dangerous, indeed fatal symptoms, after the lapse of a few hours. They show how little time must be taken into account when agitating the question of the necessity of artificial assistance; how much more requisite it is to regard present symptoms, and to be guided by the patient's actual condition.

Medical Times and Gazette.

Local Anæsthesia—Employment of Hardy's Instrument.

The first essay with this instrument was made by M. Nelaton, at the Clinique, upon a girl who was suffering from abscess of the axilla, and from a small wound upon the back of the wrist, both extremely painful. The instrument was composed of a caoutchouc reservoir of air adapted to a copper pump, made to receive the sponge for the chloroform. A valve at one extremity permitted the air to enter the instrument, which terminated in a caoutchouc tube. The first application of the chloroform upon the tumour of the axilla produced an insensibility which lasted three hours, during which time the part could be handled and examined with impunity. In the second essay, M. Dubois plunged a knife into the abscess, which was ripe, after the employment of the chloroformic fumigation. The patient declared that she was not conscious of pain, and became aware of the fact that the abscess was opened only by touching the part with her hand. From this time she had no more pain. The little wound on the wrist, fumigated in the same manner, remained quite insensible.—*Ibid.*

On Albumen in the Urine after Scarlatina.

By DR. H. BENCE JONES, F. R. S., &c.

The question of the passage of the scarlet-fever poison out of the system through the kidneys, has still to be proved. The general treatment differs in no respect from that of Bright's disease. Except that recovery is more frequent, and that the symptoms yield more easily to treatment, I know of no difference between this disease and Bright's disease. Mercurials are as dangerous in the dropsy after scarlet fever, as in Bright's disease. Diuretics are as much to be avoided; sudorifics and aperients are as beneficial. In extreme cases of both diseases, the benefit of elaterium might be illustrated by many examples if my time admitted me to read them. In both diseases the blood becomes impure, from the accumulation of the products of the organic changes in the body. I might sum up the objects to be attained, if possible, in these few words, viz., relieve congestion, and purify the blood. The appearance of albumen in urine in cholera is caused by passive congestion of the kidney; while the albumen in rheumatic fever, is the result of active congestion. The albumen after the scarlet fever may also, at least as regards its treatment, be considered as produced by a state of more or less active congestion of the kidney.—*Braithwaite's Retrospect, from Medical Times and Gazette.*

Abstract of Meteorological Observations for February, 1854, made at Philadelphia, Pa. By PROF. JAMES A. KIRKPATRICK.

1854. Feb.	BAROMETER.	THERMOMETER.		Dew point	Prevailing Winds.	General Remarks.
	Mean.	Mean.	Daily Range.	2 P. M.		
	Inches.	deg.	deg.	deg.	Points.	
1	29.553	45.0	18	35.3	S.W.	M. and aft. cloudy, ev. clear.
2	29.510	51.0	20	44.7	S.W.	{ M. & aft. cloudy, ev. clear, Therm. highest 61°. Barometer lowest 29.432.
3	29.899	21.0	8	25.0	N.W.	M. Snow, e. cloudy, a. clear.
4	30.172	21.0	8	25.0	N.W.	Clear.
5	29.955	27.5	23	29.7	(Var.)	M&a c'y, e. clear, T. low. 16°
6	30.237	23.0	12	29.0	N.W.	Clear.
7	30.316	27.0	12	30.7	(Var.)	Cloudy.
8	29.691	39.5	20	46.7	(Var.)	do. Rain all day.
9	29.684	40.0	10	27.7	S.W.	Clear.
10	29.879	39.0	14	25.0	(Var.)	do.
11	30.213	25.7	11½	30.3	N.W.	M. and aft. clear, ev. cloudy.
12	30.254	30.0	10	35.0	(Var.)	Cloudy.
13	30.008	39.5	15	44.7	N.E.	do. aft. and. ev. Rain.
14	29.766	51.0	18	55.3	N.E.	do. ev. Rain.
15	29.744	42.0	6	42.7	N.	do. light Rain all day.
16	29.921	35.0	6	35.7	S.W.	Morn. Snow, ev. clear.
17	30.214	30.0	8	29.3	W. NW.	M. and ev. clear, aft. cloudy.
18	30.092	33.0	16	24.7	W. S.W.	Clear.
19	29.939	38.0	10	31.3	N.W.	M. and ev. clear, aft. cloudy.
20	29.817	28.0	6	31.0	E.	Cloudy, S stm. 10½ AM. began.
21	29.751	30.0	14	27.7	N.W.	M. c'y. S stop. 9½ AM. e. clear.
22	29.814	34.0	16	35.0	S.W.	M. clear, aft. and ev. cloudy.
23	30.000	22.0	6	25.0	N.W.	Clear.
24	30.112	26.5	17	28.0	S.W.	do.
25	30.310	32.0	4	27.0	N.E.	M. clear, aft. and ev. cloudy.
26	29.644	41.0	20	48.7	(Var.)	Cl'y, Rain till 4 pm. then fog.
27	29.943	37.0	10	27.3	N.W.	M. R&S till 9, a. c'y. e. c'r.
28	30.319	31.0	12	27.7	(Var.)	M& e. c'r, a. c'y, B. h. 30.404
Monthly Mean	1854	29.957	33.4	45	33.0	NW.SW 4.20 in. rain and melt. snow.
	1853	29.946	36.0	44½	35.8	NW. W 4.41 do do
	1852	29.861	33.0	48½	30.4	W. NW 2.71 do do
Monthly mean for 3 years.		29.921	34.1	46	33.1	NWWSW 3.78 inches.